U.S. Department of the Interior

Bureau of Land Management

Lewistown Proposed Resource Management Plan and Final Environmental Impact Statement

Volume III: Appendices B — W

February 2020

Estimated Lead Agency Total Costs Associated with Developing and Producing This EIS

$3,772,000

The Bureau of Land Management's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

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TABLE OF CONTENTS – VOLUME III

APPENDICES

B Collaboration and Coordination
C RMP Amendments, Implementation-Level Plans, and Related Land Use Plans
D Implementation and Monitoring
E Special Status Species Confirmed or Likely to Inhabit the Planning Area
F Design Features and Best Management Practices
G Reclamation
H Draft Air Resource Management Plan: Adaptive Management Strategy for Oil and Gas Resources
I Fire and Emergency Stabilization and Rehabilitation
J Impoundments
K North Continental Divide Ecosystem Grizzly Bear Conservation Strategy
L Stipulations and Allocations Applicable to Fluid Minerals Leasing
M Summary of the Lewistown Field Office Wilderness Characteristics: 2014 Update
N BLM Standards for Rangeland Health and Guidelines for Livestock Grazing Management
O Grazing Allotments
P Drought Policy
Q Recreation Management Areas
R Land Ownership Adjustment Categories
S Withdrawal Segregations
T Areas of Critical Environmental Concern: Report on the Application of the Relevance and Importance Criteria
U ACEC Management Actions
V Draft Wild and Scenic River Report
W Analysis Assumptions and Cumulative Effect Scenario

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Appendix B

Collaboration and Coordination

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TABLE OF CONTENTS

Section Page

APPENDIX B. COLLABORATION AND COORDINATION B-1

B.1 Collaboration....................B-1
B.2 List of Preparers....................B-2

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Appendix B. Collaboration and Coordination

B.1 COLLABORATION

The BLM is the lead agency for the Lewistown RMP. On August 16, 2013, the BLM wrote to 67 local, state, federal, and tribal representatives, inviting them to participate as cooperating agencies for the Lewistown RMP revision. Nine representatives agreed to participate in the RMP as designated cooperating agencies and signed a memorandum of understanding (MOU) with the BLM.

Cooperating Agency Participation

Agencies and Tribes Invited to be Cooperators	Agencies and Tribes that Signed MOUs
Montana Fish, Wildlife & Parks (MFWP), Helena Office	No
MFWP, Great Falls Office	No
MFWP, Lewistown Office	Yes
BIA, Rocky Mountain Regional Office	No
BOR, Montana Area Office, Great Plains Region	No
USFWS, Helena Office	No
USFWS, Charles M. Russell National Wildlife Refuge	Yes
Department of Natural Resources and Conservation (DNRC), Northeastern Land Office	Yes
US Department of Agriculture (USDA) Forest Service (Forest Service), Lewis and Clark National Forest	No
Forest Service, Helena National Forest	No
USDA Natural Resources Conservation Service (NRCS), Bozeman Area Office	No
USDA NRCS, Great Falls Area Office	No
US Environmental Protection Agency (EPA) Region 8	No
EPA Montana Operations	No
Montana State Historic Preservation Office (SHPO)	No
Fergus County Commission	Yes
Meagher County Commission	No
Teton County Commission	No
Pondera County Commission	Yes
Judith Basin County Commission	Yes
Lewis and Clark County Commission	Yes
Petroleum County Commission	Yes
Cascade County Commission	No
Chouteau County Commission	No
Indian Butte Cooperative State Grazing District (CSGD)	Yes
Crooked Creek CSGD	No
Chain Buttes CSGD	No
Grass Range and Flatwillow CSGDs	No
Winnett CSGD	No
Williams Coulee CSGD	No
Weede CSGD	No
Montana Association of Conservation Districts	No
Montana Department of Environmental Quality (MDEQ)	No
Continental Divide National Scenic Trail (NST)	No
Nez Perce National Historic Trail (NHT)	No
Montana Department of Agriculture	No

Agencies and Tribes Invited to be Cooperators	Agencies and Tribes that Signed MOUs
Nez Perce Tribal Executive Committee	No
Nez Perce Tribe	No
Nez Perce Tribal Business Council	No
Blackfeet Tribal Business Council	No
Blackfeet Nation	No
Chippewa Cree Tribe	No
Confederated Salish and Kootenai Tribes	No
Crow Tribe	No
Fort Belknap Indian Community – Buffalo Chaser Society	No
Fort Belknap Indian Community	No
Fort Peck Tribes	No
Little Shell Tribe	No
Northern Cheyenne Tribe	No
Shoshone-Bannock Tribes	No

B.2 LIST OF PREPARERS

Implementation of the RMP begins once the ROD and Approved Plan for the Proposed RMP/Final EIS are signed.

Location	Name	Role/Responsibility
Lewistown Field Office	Dan Brunkhorst	RMP Project Manager
	Brett A. Bl;umhardt	Field Manager
	Geoff Beyersdorf Peter McFadden	Former Field Manager
	Jonathan Moor	Public Affairs Officer
	Chad Krause Bonny Richard	Water Resources; Vegetation (Riparian and Wetlands)
	Stephen Smith	Vegetation (Invasives)
	Robert Thompson	Vegetation (Uplands); Livestock Grazing
	Bruce Reid	Vegetation (Forest); Forestry
	Rich Byron	Vegetation (Forest); Forestry
	Matthew Comer Ernest McKenzie	Wildlife (including Special Status Species) Fisheries
	Zane Fulbright Josh Chase	Cultural Resources; Special Designations; Tribal Interests
	Kelly Scarbrough Travis Rixford	Visual Resources; Wilderness Characteristics; Recreation; Travel Management; Special Designations
	Debbie Tucek	Lands and Realty; Withdrawals; Renewables
	Betty Westburg	Technical Editor; Administrative Record; ePlanning
	Craig Towery Dorothy Van Oss	Geology and Solid Minerals; Caves and Karsts; Public Safety
	Andy Oestreich Abby Kirkaldie Eva Karau	GIS
North Central Montana District Office	Mark Albers	District Office Manager
	Stan Benes	Former Central Montana District Office Manager
	Karly DeMars	Wildfire Ecology and Management
Butte Field Office	Scott Haight	Field Manager
	Corey Meier	Assistant Field Manager
Missoula Field Office	Chris Rye	Geology and Minerals; Caves and Karsts; Public Safety
Great Falls Field Office	Dale Manchester	Fluid Minerals
	Tessa Wallace	Fluid Minerals; Public Safety

Location	Name	Role/Responsibility
Montana State Office	Susan Bassett Melissa Hovey Brinda Ramanathan	Air Quality and Climate
	Wendy Velman	Special Status Species (Plants)
	Gregg Liggett	Paleontological Resources
	Renee Johnson	Renewable Energy
	Alden Shallcross	Water Resources
	Floyd Thompson	Range Management
Montana State Office Review Team	Mike Philbin Adam Carr	Deputy State Director for Resources, Planning and Fire Branch Chief-Biological Resources and Science
	Jake Chaffin Christopher Boone	Wildlife Biologist; Wildlife/Threatened and Endangered Species
	Peter Bierbach	Hazardous Materials Coordinator; Public Safety
	Pat Harty	Fuels Program Lead
	Floyd Thompson	Rangeland Management Specialist; Livestock Grazing/Rangeland Resources
	David LaFevre	Outdoor Recreation Planner; National Landscape Conservation System Program Lead
	Ken Schmid	Fire Management Office; Fire/Fuels
	Alden Shallcross	Hydrologist; Water and Riparian Resources
	Mark Sant	Tribal Coordinator
	Marcia Pablo	Tribal Coordinator
	Cecil Werven	Realty Specialist
	Jim Ledger	Realty Specialist; Access/Land Tenure Program Manager
	David Wood	Planning and Environmental Coordinator
	Nate Arave	Geologist; Minerals and Energy
	Ken Reed, Bill Hensley	Foresters; Forest Resources
	Gary Smith	Archeologist; Social and Cultural Resources
	Rick Waldrup Brian Smith	Outdoor Recreation Planner/NLCS (Acting)
	Andrew Gibbs	Natural Resource Specialist; Fluid Minerals
	Ruth Miller	Planning and Environmental Specialist
Blue Sky Zone	Jessica Montag	Socioeconomics and Environmental Justice
Forest Service	Mike McNamara	Soils
	Henry Eichman Kirsten Waltz	Socioeconomics and Environmental Justice
EMPSi – Environmental Management and Planning Solutions, Inc.	Chad Ricklefs, AICP	Project Manager
	Kate Krebs	Assistant Project Manager; Wilderness Characteristics; Special Designations
	Joshua Schnabel	Assistant Project Manager
	David Batts	Facilitator/Principal-in-Charge
	Meredith Zaccherio	Natural Biological Resources Lead; Vegetation (Riparian and Wetlands and Special Status Plants)
	Katie Patterson	Nonrenewable Resources Lead; Fluid and Solid Minerals; Public Safety
	Peter Gower, AICP, CEP	Lands and Realty Lead; Recreation; Travel Management; Withdrawals; Renewables
	Amy Cordle	Air Quality and Climate
	Annie Daly	Air Quality and Climate; Wildfire
	Jenna Jonker	Geology; Soils; Caves and Karsts; GIS
	Derek Holmgren	Water Resources; Visual Resources

Location	Name	Role/Responsibility
EMPSi – Environmental Management and Planning Solutions, Inc. *(continued)*	Kevin Rice	Vegetation (Invasives, Uplands, and Forests); Wildlife (including Special Status Species); Forestry
	Julie Remp	Fish and Wildlife (including Special Status Species)
	Zoe Ghali	Wildfire Ecology and Management; Livestock Grazing; Forestry
	Kevin Doyle	Cultural Resources; Paleontological Resources; Tribal Interests
	Sean Cottle	Wilderness Characteristics; Special Designations; Administrative Record
	Holly Prohaska	Livestock Grazing
	Peter Gower	Recreation; Travel Management
	Angie Adams	Lands and Realty; Withdrawals
	Peter Gower	Renewables
	Marcia Rickey	GIS
	Randolph Varney	Technical Editor

Appendix C

RMP Amendments, Implementation-Level Plans, and Related Land Use Plans

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TABLE OF CONTENTS

Section Page

APPENDIX C. RMP AMENDMENTS, IMPLEMENTATION-LEVEL PLANS, AND RELATED LAND USE PLANS C-1

C.1 Resource Management Plan Amendments and Implementation-level Plans C-1
C.2 Related Land Use Plans C-2
  C.2.1 Other Federal Plans C-2
  C.2.2 State Plans C-2
  C.2.3 Local Government Plans C-3

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Appendix C. RMP Amendments, Implementation-Level Plans, and Related Land Use Plans

C.1 RESOURCE MANAGEMENT PLAN AMENDMENTS AND IMPLEMENTATION-LEVEL PLANS

Since the Headwaters RMP (BLM 1984) and JVP RMP (BLM 1994) were developed and approved, the BLM has implemented amendments to provide additional land management direction. BLM policy and program-specific guidance direct implementation-level planning for on-the-ground actions. The table below identifies approved plan amendments incorporated into the existing land use plans. They include local RMP-specific amendments and amendments resulting from state or national level policy direction.

Table C-1
RMP Amendments and Implementation-Level Plans

Amendments to Headwaters RMP	• Headwaters RMP Special Designation RMP Amendment (BLM 1986a) • Lewistown Field Office Greater Sage-Grouse Approved RMP Amendment (BLM 2015a)
Amendments to JVP RMP	• North Moccasin Mountains Land Exchange Environmental Assessment Amendment (BLM 1995) • Cat Creek Environmental Assessment Amendment (BLM 1997a) • Two Crow Land Exchange Environmental Assessment Amendment (BLM 1999) • Crow Boundary Settlement Act Land Exchange Project Phase Three Environmental Assessment Amendment (BLM 2000) • Lewistown Field Office Greater Sage-Grouse Approved RMP Amendment (BLM 2015a)
State/National Level Plans Resulting in RMP Amendments	• Off-Highway Vehicle Environmental Impact Statement and Proposed Plan Amendment for Montana, North Dakota, and South Dakota (BLM 2003a) • Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota, and South Dakota ROD (BLM 1997b) • Wind Energy Development Programmatic EIS Plan Amendment to the Headwaters and Judith-Valley-Phillips RMP (BLM 2005b) • Geothermal Leasing in the Western United States Final EIS (BLM 2008b) • Montana Dakotas Fire/Fuels Management Environmental Assessment/Plan Amendment (BLM 2003b)
Implementation-Level Plans/Guidance	• Montana Statewide Wilderness Study Report (BLM 1991a) • Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States ROD (BLM 2007a)

C.2 RELATED LAND USE PLANS

The BLM's planning regulations require that RMPs be consistent with officially approved or adopted resource-related plans of other federal, state, local, and tribal governments, to the extent possible. The RMPs also should be consistent with the purposes, policies, and programs of federal laws and regulations applicable to BLM-administered lands and minerals. During development of this RMP/EIS, the BLM has reviewed and considered plans formulated by federal, state, local, and tribal governments that relate to land and resource management. These plans are discussed below.

C.2.1 Other Federal Plans

US Fish and Wildlife Service

- Northern Continental Divide Ecosystem (NCDE) Grizzly Bear Conservation Strategy Draft (USFWS 2013)
- Pallid Sturgeon Recovery Plan (USFWS 1993)

Forest Service

- The 2009 Continental Divide National Scenic Trail Comprehensive Plan (Forest Service 2009)
- Nez Perce (Nee-Me-Poo) National Historic Trail Comprehensive Plan (Forest Service 1990)

Other

- Final Environmental Assessment, Finding of No Significant Impact and Selected Alternative for the Special Area Management Plan Upper Yellowstone River, Montana (USACE 2011)
- Blackfeet Comprehensive Plan (Blackfeet Planning Department 1984)
- Lewis and Clark National Historic Trail Comprehensive Plan for Management and Use (NPS 1982)
- 2016-2018 National Invasive Species Management Plan (NISC 2016)

C.2.2 State Plans

- Air Pollution State Implementation Plan (MDEQ)
- Montana's Comprehensive Fish and Wildlife Conservation Strategy Statewide Habitat Plan (MFWP 2005)
- Management Plan and Conservation Strategies for Greater Sage-Grouse in Montana – Final (Montana Sage-Grouse Working Group 2005)
- Montana Statewide Elk Management Plan (MFWP 2004a)
- Conservation Plan for Black-Tailed and White-Tailed Prairie Dogs in Montana (Montana Prairie Dog Working Group 2002)
- Montana Bald Eagle Management Plan, 2nd ed. (Montana Bald Eagle Working Group 1994)
- Montana Bald Eagle Management Guidelines: An Addendum to Montana Bald Eagle Management Plan (Montana Bald Eagle Working Group 2010)
- Montana Gray Wolf Conservation and Management Plan (MFWP 2003)
- Montana Gray Wolf Conservation and Management Plan – Amended Record of Decision (MFWP 2004b)
- Montana's State Wildlife Action Plan (MFWP 2015)

- Montana Tourism and Recreation Strategic Plan (2008-2012 and 2013-2017; Montana Office of Tourism 2008, 2013)
- Montana Aquatic Nuisance Species (ANS) Management Plan (2002) (Montana ANS Technical Committee 2002).
- The Montana Weed Management Plan (Montana Noxious Weed Summit Advisory Council Weed Management Task Force 2008)
- Montana Nonpoint Source Management Plan (MDEQ 2007, 2012)
- 2013 Update to the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment (State of Montana Department of Military Affairs Disaster and Emergency Services 2013)
- Preserving Montana: The Montana Historic Preservation Plan, 2013-2017 (SHPO, Montana Historical Society 2013)
- Approved Total Maximum Daily Load (TMDL) planning area documents, which currently consist of Judith Mountains (MDEQ 2013), Lower Musselshell (MDEQ 2001), Big Springs (MDEQ 2005a), Missouri-Cascade and Belt (MDEQ 2011), Teton River (MDEQ 2003), Sun River (MDEQ 2004), and Dearborn River (MDEQ 2005b). Consistency will also be evaluated for all future approved TMDL documents or watershed plans within the planning area.
- Priceless Resources: A Strategic Framework for Wetland and Riparian Area Conservation and Restoration in Montana 2013 – 2017 (State of Montana, MDEQ and Montana Wetland Council 2013)
- Montana State Water Plan: A Watershed Approach to the 2015 Montana State Water Plan (DNRC 2014)
- STIP 2015 – 2019; State of Montana Department of Transportation Statewide Transportation Improvement Program – Final (Montana Department of Transportation 2015)
- Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat and Yellowstone Cutthroat Trout in Montana 2007 (MFWP 2007)

C.2.3 Local Government Plans

- Cascade County Growth Policy Update (Cascade County 2014)
- Chouteau County Development Regulation (Chouteau County 2011a)
- Chouteau County Growth Policy (Chouteau County 2011b)
- Comprehensive Economic Development Strategy, North Central Montana Economic Development District, Inc. (EDDI 2006)
- Lewis and Clark County Growth Policy (Lewis and Clark County 2004)
- Pondera County Growth Policy: A Comprehensive Plan (PRPA 2011a)
- Conrad Growth Policy (and Town of Valier Planning and Growth Policy (PRPA 2011b)
- Valier Growth Policy (PRPA 2011c)
- Teton County Growth Policy Plan (Teton County 2003)
- Pre-Disaster Mitigation Plans (Cascade County 2011; Fergus County 2007; Judith Basin County 2007; Pondera County 2011; Petroleum County and Town of Winnett 2008; Teton County 2013)

- Multi-Hazard Mitigation Plan 2010-2015 (Chouteau County 2010)
- Teton County All Hazard Mitigation Plan (Teton County 2005)
- Community Wildfire Protection Plans (Cascade County 2008; Chouteau County 2007; Meagher County 2008; Pondera County 2007; Teton County 2011)
- Wildland-Urban Interface Wildfire Mitigation Plans (Fergus County 2004; Judith Basin County 2004; Petroleum County 2004)
- Fergus County Land Use Policy, Revised Feb. 16, 2011 (Fergus County 2011)

Appendix D

Implementation and Monitoring

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TABLE OF CONTENTS

Section Page

APPENDIX D. IMPLEMENTATION AND MONITORING D-1

D.1 Planning D-1
D.2 Implementation D-2
D.3 Monitoring..D-3
D.4 Evaluation...D-4

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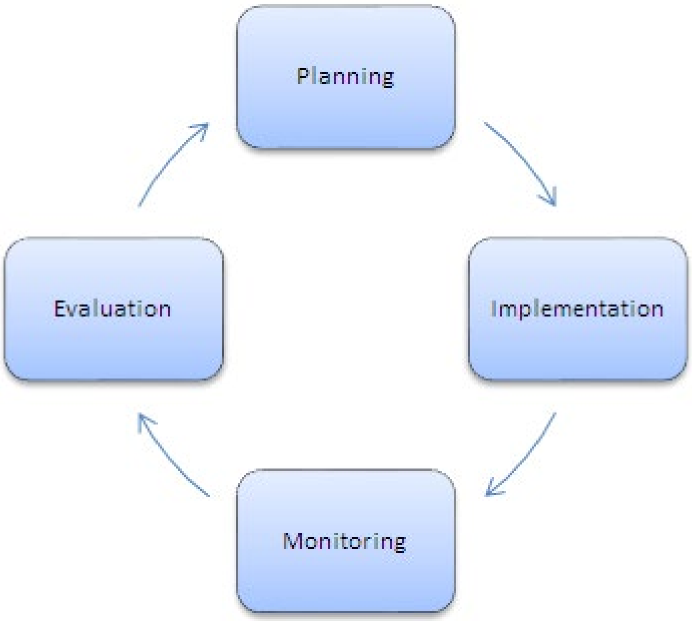
Appendix D. Implementation and Monitoring

Plan implementation is a continuous process, occurring over the life of the resource management plan (RMP), that will take into consideration the changing circumstances and new information that comes about through monitoring. The goal is to maintain a dynamic resource management plan that is evaluated and amended if necessary on an issue-by-issue basis.

The implementation and monitoring process for the Lewistown Resource Management Plan involves five major steps: planning, implementation, monitoring, evaluation, and adjustments, as necessary. Planning involves a great amount of time and resources to identify issues and management opportunities to address those issues. During the planning process, the scope of the issue is identified, and management goals, objectives, and actions are defined to address the issues. Once the planning process is completed, decisions are implemented, monitored, and evaluated overtime to determine if goals are being met and if management actions are achieving the desired objective or standard. Results of monitoring are documented and communicated to the appropriate parties, and management objectives and actions are modified based on results, if necessary.



D.1 PLANNING

The Proposed RMP and Final Environmental Impact Statement (EIS) is approved once the Record of Decision (ROD) is signed. An Approved Plan will also be available that will include all the approved decisions from the RMP.

The US Department of the Interior, Bureau of Land Management (BLM) regulation in 43 Code of Federal Regulations (CFR) 1610.5-4 provides that land use plan decisions and supporting components can be maintained to reflect minor changes in data. Maintenance is limited to further refining, documenting, or clarifying a previously approved decision incorporated in the plan. Maintenance must not expand the scope of resource uses or restrictions or change the terms, conditions, and decisions of the Approved Plan.

Land use plan decisions are changed through either a plan amendment or a plan revision. The process for conducting plan amendments is basically the same as the land use planning process used in developing RMPs. The primary difference is that circumstances may allow for completing a plan amendment through the environmental assessment (EA) process, rather than through an EIS. Plan amendments (43 CFR 1610.5-5) change one or more of the terms, conditions, or decisions of an approved land use plan. Plan amendments are most often prompted by the need for the following:

- To consider a proposal or action that does not conform to the plan
- To implement new or revised policy that changes land use plan decisions
- To respond to new, intensified, or changed uses on BLM-administered land
- To consider significant new information from resource assessments, monitoring, or scientific studies that change land use plan decisions

D.2 IMPLEMENTATION

Implementation of the RMP begins once the ROD and Approved Plan for the Proposed RMP/Final EIS are signed.

Decisions made through the RMP planning process are implemented over time. Some of the decisions are immediate and go into effect with the ROD. These are decisions such as the road designations and lands available for disposal through exchange. Some decisions would be implemented after a site-specific environmental review is completed. Examples are range improvements, recreation sites, or approval of an application for permit to drill a natural gas well. Other decisions include guidance that would be applied during site-specific analysis or activity planning.

Any future proposals or management actions will be reviewed against the Approved Plan to determine if the proposal would be in conformance with the RMP. While the Final EIS for the Lewistown RMP will comply with the National Environmental Policy Act of 1969 (NEPA) for the broad-scale decisions to be made in the ROD, it does not replace the requirement to comply with NEPA for implementation actions. Proposed actions fall into one of the following five categories:

- Actions that are exempt from NEPA
- Actions that are categorically excluded
- Actions that are covered by an existing NEPA environmental document
- Actions that require preparation of an EA to determine if an EIS is needed
- Actions that require preparation of an EIS

The NEPA procedural, documentation, and public involvement requirements are different for each category.

Activity level planning will address any proposed new activities and long-term permitted activities that need to be brought into compliance with plan decisions, subject to valid existing rights. Monitoring of these activities will then determine the effectiveness of applying the land use plan direction. Where land use plan actions or best management practices (BMPs) are not effective, the plan could be modified, without amendment or revision as long as assumptions and effects disclosed in the analysis remain valid and that broad-scale goals and objectives are not changed. This approach uses on-the-ground monitoring, a scientific information review, and practical experience and common sense to adjust management and modify implementation of the plan to reach the desired outcome.

As part of this process, the BLM will review management actions and the plan periodically to determine whether the objectives set forth in this document are being met. Where they are not being met, the BLM will consider adjusting the scope. Where the BLM considers taking or approving actions that would alter or not conform to overall direction of the plan, it would prepare a plan amendment and environmental analysis of appropriate scope.

In addition, during the life of the Approved Plan, the BLM expects that new information gathered from field inventories and assessments, research, other agency studies, and other sources will update baseline data or support new management techniques, BMPs, and scientific principles. To the extent that such new information or actions address issues covered in the plan, the BLM would integrate the data through plan maintenance.

D.3 MONITORING

Monitoring is the repeated measurement of activities and conditions over time. Monitoring data gathered over time is examined and used to draw conclusions on whether management actions are meeting stated objectives, and if not, why. Conclusions are then used to make recommendations on whether to continue current management or what changes need to be made in management practices to meet objectives.

Monitoring determines whether planned activities have been implemented in the manner prescribed by the plan. This monitoring documents the BLM's progress toward full implementation of the land use plan decision. No specific thresholds or indicators are required for this type of monitoring.

Monitoring also is used to determine if the implementation of activities has achieved the desired goals and objectives. This requires knowledge of the objectives established in the RMP and of the indicators that can be measured. Indicators are established by technical specialists in order to address specific questions, and thus avoid collecting unnecessary data. Success is measured against the benchmark of achieving desired future conditions established by the plan.

Monitoring is also used to ascertain whether a cause-and-effect relationship exists among management activities or resources being managed. It confirms whether the predicted results occurred and if assumptions and models used to develop the plan are correct. This type of monitoring is often done by contract with another agency, academic institution, or other entity. It is usually expensive and time consuming since the results are not known for many years.

Regulations at 43 CFR 1610.4-9 require that the proposed plan establish intervals and standards, as appropriate, for monitoring and evaluating the plan, based on the sensitivity of the resource decisions involved. The BLM periodically reviews the progress in meeting the plan objectives and adhering to the management framework established by the plan. Council on Environmental Quality (CEQ) regulations implementing NEPA state that agencies may provide for monitoring to ensure that their decisions are carried out and should do so in important cases (40 CFR 1505.2[c]). To meet these requirements, the BLM would prepare periodic reports on the implementation of the RMP.

D.4 EVALUATION

Evaluation is a process in which the plan and monitoring data are reviewed to see if management goals and objectives are being met and if management direction is sound.

The BLM would use land use plan evaluations to determine if the decisions in the RMP, supported by the accompanying NEPA analysis, are still valid. Generally, the RMP will be evaluated every five years, unless unexpected actions, new information, or significant changes in other plans, legislation, or litigation triggers an evaluation. Land use plan evaluations determine if decisions are being implemented, whether mitigation measures are satisfactory, whether there are significant changes in the related plans of other entities, whether there is new data of significance to the plan, and if decisions should be changed through amendment or revision.

Based on an anticipated ROD and Approved Plan released in February of 2020, scheduled evaluations for the Lewistown RMP/EIS take place in March of 2025, 2030, 2035, and 2042.

Evaluations will follow the protocols established by the BLM Land Use Planning Handbook H-1601-1[1] in effect at the time the evaluation is initiated.

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[1] US Department of the Interior, Bureau of Land Management. 2005. Handbook H-1601-1—Land Use Planning Handbook. Rel. 1-1693. Washington, DC. March 11, 2005. Internet website: https://www.blm.gov/style/medialib/blm/ak/aktest/planning/planning_general.Par.65225.File.dat/blm_lup_handbook.pdf.

Appendix E

Special Status Species Confirmed or Likely to Inhabit the Planning Area

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Appendix E. Special Status Species Confirmed or Likely to Inhabit the Planning Area

Table E-1
Special Status Species Confirmed or Likely to Inhabit the Planning Area

Species	Common Name	Scientific Name	Status[1]	General Habitat	Planning for Priority Species and Vegetation (PPSV) Nested Category
Mammals	Black-tailed prairie dog	*Cynomys ludovicianus*	BLM S	Colonies are found on flat, open grasslands and shrub/grasslands with low, relatively sparse vegetation. The most frequently occupied habitat in Montana is dominated by western wheatgrass, blue grama, and big sagebrush. Colonies are associated with silty clay loams, sandy clay loams, and loams and fine to medium textured soils are preferred, presumably because burrows retain their shape and strength better than in coarse, loose soils.	Prairie dog towns
	Canada lynx	*Lynx canadensis*	FT	Habitat consists of dense spruce-fir, Douglas-fir, early seral lodgepole pine, mature lodgepole pine with developing understory of spruce-fir and aspen in subalpine zone and timberline. The species uses caves, rock crevices, banks, logs for denning and is closely associated with snowshoe hare.	Montane forests and meadows
	Gray wolf	*Canis lupis*	BLM S	This species exhibits no habitat preference except for the presence of native ungulates in its territory on a year-round basis. Gray wolves establishing new packs in Montana have demonstrated greater tolerance of human presence and disturbance than previously thought characteristic of this species.	Montane forests and meadows

Species	Common Name	Scientific Name	Status[1]	General Habitat	Planning for Priority Species and Vegetation (PPSV) Nested Category
Mammals *(continued)*	Grizzly bear	*Ursus arctos horribilis*	FT	This species primarily uses meadows, seeps, riparian zones, mixed shrub fields, closed timber, open timber, sidehill parks, snow chutes, and alpine slabrock habitats. Habitat use is highly variable between areas, seasons, local populations, and individuals. Historically, the grizzly bear was primarily a plains species occurring in higher densities throughout most of eastern Montana.	Montane forests and meadows
	Swift fox	*Vulpes velox*	BLM S	This species typically occupies open prairie and arid plains, including areas intermixed with winter wheat fields in north-central Montana. Individuals use burrows when inactive, either dug by themselves or made by other mammals (marmot, prairie dog, badger). The burrows are usually located in sandy soil on high ground such as hill tops in open prairies, along fencerows, or occasionally in a plowed field. Suitable habitat is generally extensive in size (preferably over 100,000 acres), with relatively level topography, and with greater than 50 percent of the area undisturbed by agriculture. A total of 8 million suitable acres were identified in Montana.	Sagebrush/ grasslands
	Wolverine	*Gulo gulo*	FPT	This species primarily lives in mountainous alpine terrain and montane-boreal forests, preferring roadless areas to areas that have been disturbed through forestry activities or fire. They tend to occupy higher elevations in summer and lower elevations in winter.	Montane forests and meadows
	Fringed myotis	*Myotis thysanodes*	BLM S	Typical habitat for this species consists of rocky outcroppings in mid-elevation ponderosa pine, piñon/juniper, oak, and mixed conifer woodlands, grasslands, deserts, and shrublands.	All habitats

Species	Common Name	Scientific Name	Status[1]	General Habitat	Planning for Priority Species and Vegetation (PPSV) Nested Category
Mammals *(continued)*	Pallid bat	*Antrozous pallidus*	BLM S	This species is found in arid deserts, juniper woodlands, sagebrush shrub-steppe, and grasslands, often with rocky outcrops and water nearby. Suitable habitat is found in arid and semi-arid regions throughout northern Mexico and the western United States. Pallid bats eat beetles, grasshoppers, and moths, and they forage for slow-moving prey, such as scorpions, flightless arthropods, and sometimes lizards, at and near ground level. They visit flowers in their hunt for insects and are natural pollinators of several species of cactus (south-central Montana).	Riparian/wetland communities
	Spotted bat	*Euderma maculatum*	BLM S	This species has been detected in open arid habitats dominated by juniper and sagebrush, sometimes intermixed with limber pine or Douglas-fir, or in grassy meadows in ponderosa pine savannah. Occurrences around water sources and in meadow openings have also been documented. Roosting occurs in caves, and in cracks and crevices in cliffs and canyons.	Sagebrush/grasslands; riparian/wetland communities; ponderosa pine breaks/badlands
	Townsend's big-eared bat	*Plecotus townsendii*	BLM S	This species is associated with caves and abandoned mines for day roosts and hibernacula. The species will also use abandoned buildings in western shrubland, piñon/juniper woodlands, and open montane forests in elevations up to 9,500 feet.	Riparian/wetland communities; montane forests and meadows
Birds	American bittern	*Botaurus lentiginosus*	BLM S	The species favors large freshwater wetlands with tall emergent vegetation such as cattails and bulrushes. Shorelines, dense marsh vegetation, and wet meadows provide foraging habitat.	Riparian/wetland communities
	Baird's sparrow	*Ammodramus bairdii*	BLM S	The species typically nests in native prairie, but structure may ultimately be more important than plant species composition. Nesting has been observed in crested wheat, while smooth brome is avoided. Areas with little to no grazing activity are required.	Sagebrush/grasslands; grasslands

Species	Common Name	Scientific Name	Status[1]	General Habitat	Planning for Priority Species and Vegetation (PPSV) Nested Category
Birds *(continued)*	Bald eagle	*Haliaeetus leucocephalus*	BLM S	This species can be found near open water including rivers, streams and lakes, nesting and roosting in large ponderosa pine, Douglas-fir, or cottonwood trees in proximity to open water and rivers.	Riparian/wetland communities
	Black tern	*Chlidonias niger*	BLM S	This species can be found in wetlands, marshes, prairie potholes, and small ponds, with 30-50 percent of the wetland complex being emergent vegetation. Vegetation within known breeding colonies includes alkali bulrushes, canary reed-grass, cattail spp., sedge spp., rush spp., reed spp., grass spp., *Polygonum* spp., *Juncus* spp., and *Potamogeton* spp., indicating a wide variety of potential habitats are usable by Black Terns. Water levels range from about 0.5 meter (1.6 feet) to greater than 2 meters (6.6 feet) with most having depths between 0.5 meter (1.6 feet) and 1 meter (3.3 feet).	Riparian/wetland communities
	Black-backed woodpecker	*Picoides arcticus*	BLM S	The species can be found in early successional, burned forest of mixed conifer, lodgepole pine, Douglas-fir, and spruce-fir, although populations are larger in lower elevation Douglas-fir and pine forest habitats than in higher elevation subalpine spruce forest habitats.	Montane forests and meadows
	Brewer's sparrow	*Spizella breweri*	BLM S	Typical habitats consist of sagebrush, mountain meadows, and mountain shrub. The species nests in sagebrush averaging 16 inches high. The cover (concealment) for the nest provided by sagebrush is very important.	Sagebrush/grasslands
	Burrowing owl	*Athene cunicularia*	BLM S	The species can be found in open grasslands where abandoned burrows dug by mammals such as ground squirrels, prairie dogs, and badgers are available. Black-tailed prairie dog and Richardson's ground squirrel colonies provide the primary and secondary habitat for burrowing owls in the state.	Prairie dog towns

Species	Common Name	Scientific Name	Status[1]	General Habitat	Planning for Priority Species and Vegetation (PPSV) Nested Category
Birds *(continued)*	Caspian tern	*Hydroprogne caspia*	BLM S	This species prefers islands in large lakes or reservoirs, where sandy or stony beaches are used for nesting. The species has also been noted to utilize rivers.	Riparian/wetland communities
	Chestnut-collared longspur	*Calcarius ornatus*	BLM S	This species prefers short to medium grasses that have been recently grazed or mowed and native pastures.	Sagebrush/grasslands; grasslands
	Common tern	*Sterna hirundo*	BLM S	Nesting generally occurs on sparsely vegetated islands in large bodies of water.	Riparian/wetland communities
	Ferruginous hawk	*Buteo regalis*	BLM S	The species can be found in mixed-grass prairie, shrub-grasslands, grasslands, grass-sagebrush complex, and sagebrush steppe.	Sagebrush/grasslands
	Flammulated owl	*Otus flammeolus*	BLM S	The species can be found in old-growth or mature ponderosa pine, ponderosa pine, and Douglas-fir forests, often mixed with mature aspen, nesting in cavities, feeding on insects.	Montane forests and meadows
	Forster's tern	*Sterna forsteri*	BLM S	The species is found in large marshes with extensive reed beds or muskrat houses. It may also be found along marshy borders of lakes and reservoirs in Montana.	Riparian/wetland communities
	Franklin's gull	*Larus pipixcan*	BLM S	This species prefers large, relatively permanent prairie marsh complexes and builds its nests over water on a supporting structure of emergent vegetation. Nesting can occur in cattails and bulrushes.	Riparian/wetland communities
	Golden eagle	*Aquila chrysaetos*	BLM S	The species can be found on cliffs and in large trees (occasionally on power poles), and hunt over prairie and open woodlands. Cliff nests are selected for south or east aspect, less than 200 inches snowfall, low elevation, and availability of sagebrush/grassland hunting areas.	Sagebrush/grasslands; ponderosa pine breaks/badlands

Species	Common Name	Scientific Name	Status[1]	General Habitat	Planning for Priority Species and Vegetation (PPSV) Nested Category
Birds *(continued)*	Greater sage-grouse	*Centrocercus urophasianus*	BLM S	The species can be found in tall dense stands of sagebrush, and 6- to 18-inch high sagebrush covered benches in June and July (average 213 acres). Individuals move to alfalfa fields (144 acres) or greasewood bottoms (91 acres) when forbs on the benches dry out, and move back to sagebrush (average 128 acres) in late August to early September.	Sagebrush/grasslands
	Least tern	*Sternula antillarum*	FE	This species nests on unvegetated sand and pebble beaches and islands of large reservoirs and rivers in northeastern and southeastern Montana, specifically the Yellowstone and Missouri River system.	Riparian/wetland communities
	Loggerhead shrike	*Lanius ludovicianus*	BLM S	The species can be found in open riparian areas, montane meadows, agricultural areas, grasslands, shrublands, and piñon/juniper woodlands.	Sagebrush/grasslands
	Long-billed curlew	*Numenius americanus*	BLM S	This species nests primarily in short-grass or mixed-prairie habitat with flat to rolling topography. The species prefers habitats with trees, high density of shrubs (e.g., sagebrush [*Artemisia* spp.]), and tall, dense grass generally. Taller, denser grasses are used during brood-rearing when shade and camouflage from predators are presumably more important for chicks, but may also reflect decline in availability of shorter habitats with season.	Sagebrush/grasslands; grasslands
	McCown's longspur	*Calcarius mccownii*	BLM S	Breeding habitat for this species is a matrix of perennial shortgrass species (e.g., *Bouteloua gracilis* and *Buchloe dactyloides*) interspersed with cactus, and limited cover of midgrasses (e.g., *Aristida longiseta*, *Agropyron smithii*, and *Stipa comata*) and shrubs (e.g., *Gutierrezia sarothrae*, *Chrysothamnus nauseosus*, and *Artemisia frigida*).	Sagebrush/grasslands; grasslands
	Mountain plover	*Charadrius montanus*	BLM S	Prairie dog colonies and other shortgrass prairie sites are confirmed as preferred breeding habitat. Strong preference was also given to sites with slopes less than 5 percent and grass height of less than 3 inches.	Prairie dog towns

Species	Common Name	Scientific Name	Status[1]	General Habitat	Planning for Priority Species and Vegetation (PPSV) Nested Category
Birds *(continued)*	Peregrine falcon	*Falco peregrinus anatum*	BLM S	The species can be found in a wide variety of habitats. The species typically selects cliff ledges or rock outcroppings for nesting, preferring high, open cliff faces that dominate the surrounding area.	Montane forests and meadows; ponderosa pine breaks/badlands
	Piping plover	*Charadrius melodus*	FT	This species nests on sand or pebble beaches on freshwater and saline wetlands, lakes, reservoirs, and rivers, and only in areas with sparse to no vegetation. Summer range is primarily in northeastern Montana with an isolated population in Pondera County.	Riparian/wetland communities
	Red-headed woodpecker	*Melanerpes erythrocephalus*	BLM S	The species can be found along major rivers having riparian forest. The species prefers open savannah country with ground cover, snags and canopy cover. Large burns also utilized. The species nests in holes excavated 2 to 25 meters (6.6 to 82 feet) above ground by both sexes in live trees, dead stubs, utility poles, or fence posts. Individuals nest in the same cavity in successive years.	Riparian/wetland communities
	Red knot	*Calidris cantus rufa*	FT	The species utilizes larger wetlands and coastal habitats during migratory stopovers.	Riparian/wetland communities
	Sagebrush sparrow	*Artemisiospiza nevadensis*	BLM S	The species occurs in the contiguous areas of big sagebrush or in sagebrush-saltbrush habitats and does not typically occur in seral stage or patchy shrubsteppe.	Sagebrush/grasslands
	Sage thrasher	*Oreoscoptes montanus*	BLM S	The species can be found in sagebrush obligate in Montana. Abundance is generally positively correlated with the amount of sage cover and negatively correlated with grass cover.	Sagebrush/grasslands

Species	Common Name	Scientific Name	Status[1]	General Habitat	Planning for Priority Species and Vegetation (PPSV) Nested Category
Birds *(continued)*	Sprague's pipit	*Anthus spragueii*	BLM S	The species can be found in native, medium to intermediate height prairie and in a short-grass prairie landscape, often in areas with taller grasses. The species is more abundant in native prairie than in exotic vegetation and is area-sensitive, requiring relatively large areas of appropriate habitat. The minimum area requirement in a Saskatchewan study was 470 acres. The species is known to utilize and breed in alkaline meadows and around the edges of alkaline lakes.	Sagebrush/grasslands; grasslands
	Veery	*Catharus fuscescens*	BLM S	The species generally inhabits damp, deciduous forests, and is often associated with willow thickets and cottonwood along streams and lakes in valleys and lower mountain canyons.	Montane forests and meadows
	White-faced ibis	*Plegadis chihi*	BLM S	The species can be found in freshwater wetlands, including ponds, swamps and marshes with pockets of emergent vegetation. The species also uses flooded hay meadows and agricultural fields as feeding locations. Nesting occurs in areas where water surrounds emergent vegetation, bushes, shrubs, or low trees, and the species uses old stems in cattails (*Typha* spp.), hardstem bulrush (*Scirpus acutus*) or alkali bulrush (*S. paludosus*) over shallow water as their nesting habitat.	Riparian/wetland communities
Fish	Arctic grayling	*Thymallus arcticus montanus*	BLM S	The species can be found in mountain rivers and lakes.	Cold water aquatic
	Bull trout	*Salvelinus confluentus*	FT	The species can be found in cold-water rivers and lakes with low sediment levels. In the planning area, bull trout are only found in the Blackfoot and South Fork Flathead drainages. These occur in the Helena National Forest in Lewis and Clark County (American Fisheries Society 2003[1]).	Cold water aquatic

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[1] http://www.montanaafs.org/science/species-of-concern/species-status/bull-trout/.

Species	Common Name	Scientific Name	Status[1]	General Habitat	Planning for Priority Species and Vegetation (PPSV) Nested Category
Fish *(continued)*	Northern redbelly X Finescale dace	*Phoxinus eos x Phoxinus neogaeus*	BLM S	The species can be found in quiet waters from beaver ponds, bogs, and clear streams.	Warm water aquatic
	Paddlefish	*Polyodon spathula*	BLM S	The species can be found in slow or quite waters of large rivers or impoundments.	Warm water aquatic
	Pallid sturgeon	*Scaphirhynchus albus*	FE	The species can be found in large prairie rivers. The current distribution of the pallid sturgeon in Montana includes the Missouri River between Morony Dam and Fort Peck Reservoir, between Fort Peck Dam and the North Dakota border, and in the 112 kilometers of the Yellowstone River below the mouth of the Powder River. The Upper Missouri River population is thought to be comprised of only 50 adult fish, and a small number of young hatchery-reared individuals (American Fisheries Society 2001[2]).	Warm water aquatic
	Sauger	*Stizostedion canadense*	BLM S	The species can be found in larger turbid rivers and muddy shallows of lakes and reservoirs. Spawning habitat includes rocky areas in shallow water.	Warm water aquatic
	Sturgeon chub	*Macrhybopsis gelida*	BLM S	The species can be found in large prairie rivers.	Warm water aquatic
	Westslope cutthroat trout	*Oncorhynchus clarkii lewisi*	BLM S	The species can be found in cold-water streams with gravel substrates and varied pool and riffle depths.	Cold water aquatic
Invertebrates	Western pearlshell	*Margaritifera falcate*	BLM S	Cold and clear water with low velocities, low shear stress, and stable substrates.	Cold water aquatic
Reptiles	Greater short-horned lizard	*Phrynosoma hernandesi*	BLM S	The species can be found in ridge crests between coulees, and in sparse, short grass and sagebrush with sunbaked soil; limestone outcrops in canyon bottoms of sandy soil with an open canopy of limber pine-Utah juniper; and on flats of relatively pebbly or stony soil with sparse grass and sagebrush cover.	Ponderosa pine breaks/badlands; grasslands

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[2] https://units.fisheries.org/montana/science/species-of-concern/species-status/pallid-sturgeon/.

Species	Common Name	Scientific Name	Status[1]	General Habitat	Planning for Priority Species and Vegetation (PPSV) Nested Category
	Milk snake	*Lampropeltis triangulum*	BLM S	The species can be found in open sagebrush-grassland habitat and ponderosa pine savannah with sandy soils, most often in or near areas of rocky outcrops and hillsides or badland scarps, sometimes within city limits.	Ponderosa pine breaks/badlands; grasslands
	Spiny softshell turtle	*Apalone spinifera*	BLM S	Primarily a riverine species, occupying large rivers and river impoundments, the species can also be found in lakes, ponds along rivers, pools along intermittent streams, bayous, irrigation canals, and oxbows. The species occurs in open sandy or mud banks, a soft bottom, and submerged brush and other debris. Spiny softshell turtles bask on shores or on partially submerged logs. They burrow into the bottoms of permanent water bodies, either shallow or relatively deep (0.5 to 7 meters, or 1.6 to 23 feet), where they spend winter. Eggs are laid in nests dug in open areas in sand, gravel, or soft soil near water.	Warm water aquatic
	Plains hog-nosed snake	*Heterodon nasicus*	BLM S	The species exhibits an apparent preference for arid areas, farmlands, and floodplains, particularly those with gravelly or sandy soil, has been noted. Individuals occupy burrows or dig into soil, and less often are found under rocks or debris, during periods of inactivity.	Ponderosa pine breaks/badlands; sagebrush/grasslands; riparian/wetland communities
Amphibians	Great Plains toad	*Anaxyrus cognatus*	BLM S	The species can be found in sagebrush-grassland, rainwater pools in road ruts, in stream valleys, at small reservoirs and stock ponds, and around rural farms. Breeding has been documented in small reservoirs and backwater sites along streams. The species appears to prefer stock tanks and roadside ponds rather than floodplains. Eggs and larvae develop in shallow water, usually clear or slightly turbid, but not muddy.	Sagebrush/grasslands; riparian/wetland communities

Species	Common Name	Scientific Name	Status[1]	General Habitat	Planning for Priority Species and Vegetation (PPSV) Nested Category
	Plains spadefoot	*Spea bombifrons*	BLM S	The species can be found in soft sandy/gravelly soils near permanent or temporary bodies of water. The species lives largely inactive in its burrows or occupies rodent burrows, and enters water only to breed. Following heavy rains, adults have been reported in water up to 30 centimeters (1 foot) deep in flooded wagon wheel ruts, temporary rain pools formed in wide flat-bottom coulees, water tanks, and badland seep ponds. Tadpoles and toadlets have been observed in stock ponds and small ephemeral reservoirs, usually in sagebrush-grassland habitats.	Sagebrush/grasslands; riparian/wetland communities
	Northern leopard frog	*Lithobates pipiens*	BLM S	The species occupies a variety of wetland habitats with moderate salinity, including springs, slow streams, marshes, ponds, bogs, canals, flood plains, beaver ponds, reservoirs, and lakes.	Riparian/wetland communities
	Western toad	*Anaxyrus boreas*	BLM S	The species can be found in a wide variety of habitats, including desert springs and streams, meadows and woodlands, mountain wetlands, beaver ponds, marshes, ditches, and backwater channels of rivers where they prefer shallow areas with mud bottoms.	Montane forests and meadows; riparian/wetland communities

Source:

- Instruction Memorandum MT-2014-067, *2014 Montana/Dakotas Special Status Species List*. Billings, Montana. August 18, 2014.
- Endangered, Threatened, Proposed and Candidate Species, Montana Counties. Updated January 2016. Internet website: https://www.fws.gov/montanafieldoffice/Endangered_Species/Listed_Species/countylist.pdf. Accessed on September 2019.

[1] FE – Federally listed as endangered; FT – Federally listed as threatened; FPT – Federally proposed threatened; FC – Federally listed as a candidate species; BLM S – BLM Sensitive

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Appendix F

Design Features and Best Management Practices

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TABLE OF CONTENTS

Section Page

APPENDIX F. DESIGN FEATURES AND BEST MANAGEMENT PRACTICES F-1

F.1 Design Features F-1
F.2 General Best Management Practices F-12
  F.2.1 Air Resource BMPs F-12
  F.2.2 Erosion and Sediment Control Practices: Field Manual F-12
  F.2.3 Erosion and Sediment Control Practices: Reference Manual F-13
  F.2.4 Fluid Minerals BMPs F-13
  F.2.5 Montana Guide to the Streamside Management Zone Law F-14
  F.2.6 Montana Nonpoint Source Management Plan F-14
  F.2.7 Montana Placer Mining BMPs F-15
  F.2.8 Water Quality BMPs for Montana Forests F-15
  F.2.9 Wind Energy BMPs F-15
  F.2.10 Communication Tower BMPs F-16
  F.2.11 Grazing Management BMPs (Guidelines) F-17
  F.2.12 Herbicide Special Operating Procedures F-18
  F.2.13 BLM BMPs F-18
  F.2.14 Visual Resources F-18
  F.2.15 Renewable Energy Development F-18
  F.2.16 Healthy Watersheds F-18
  F.2.17 Storm Water BMPs F-19
  F.2.18 Pasture, Rangeland, and Grazing Operations BMPs F-19
  F.2.19 National Range and Pasture Handbook F-19
  F.2.20 Montana Nonpoint Source Management Program F-19

TABLES

Page

F-1 Implementation-Level Design Features F-2

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Appendix F. Design Features and Best Management Practices

F.1 DESIGN FEATURES

The United States Department of the Interior, Bureau of Land Management (BLM) will use the design features discussed in this appendix to meet statutory requirements for environmental protection and to comply with resource-specific goals and objectives set forward in the Lewistown Resource Management Plan RMP/Environmental Impact Statement (EIS). The BLM will apply design features to modify the operations of authorized land uses or activities to meet these obligations.

The BLM will apply these measures to avoid, minimize, rectify, reduce, and compensate for effects if an evaluation of the authorization area indicates the presence of resources of concern. These include air, water, soils, cultural resources, national historic trails, recreation values, and important wildlife habitat. The intent is to reduce effects associated with authorized land uses or activities such as road, pipeline, or power line construction, mineral development, range improvements, and recreation.

The design features for authorizations will be identified as part of the National Environmental Policy Act of 1969 (NEPA) process. This will come about through interdisciplinary analysis involving resource specialists, project proponents, government entities, landowners, and other surface management agencies. Those measures selected for implementation will be identified in the record of decision (ROD) (for an EIS) or Decision Record (for an environmental assessment [EA] or categorical exclusion) for those authorizations. The measures chosen will inform a potential lessee, permittee, or operator of the requirements that must be met when using BLM-administered lands and minerals and will mitigate effects from those authorizations.

Because these actions create a clear obligation for the BLM—to ensure any proposed mitigation action adopted in the environmental review process is performed—they will ensure that mitigation will reduce environmental effects in the implementation stage and include binding mechanisms for enforcement[1].

Because of site-specific circumstances and local resource conditions, some design features may not apply to some or all activities (e.g., a resource or conflict is not present on a given site), or they may require slight variations from what is described in this appendix. The BLM may add additional measures it deems necessary through the environmental analysis and as developed through coordination with other federal, state, and local regulatory and resource agencies. Application of design features is subject to valid existing rights and technical and economic feasibility.

The BLM will monitor the effectiveness of design features to determine whether they are achieving resource objectives and accomplishing desired goals. Timely adjustments would be made as necessary to meet the resource goals and objectives.

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[1] Council on Environmental Quality memorandum for heads of federal departments and agencies, *Appropriate Use of Mitigation and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact*, January 14, 2011.

The list included in this appendix is not limiting but references the most frequently used sources. The BLM may add additional site-specific restrictions it deems necessary by further environmental analysis and as developed through coordination with other federal, state, and local regulatory and resource agencies.

Because design features change or are modified, based on new information, the BLM will update the guidelines periodically. As new publications are developed, the BLM may consider those BMPs that they contain. In addition, many BLM handbooks (such as BLM Manual 9113, Roads, and 9213, Interagency Standards for Fire and Aviation Operation) also contain BMP-type measures for minimizing effects. (These BLM-specific guidance and direction documents are not referenced in this appendix.)

The EIS for this RMP does not decide or dictate the exact wording or inclusion of these design features. Rather, they are used in the RMP and EIS process as a tool to help demonstrate at the land use plan scale how they will be applied when subsequent activity plans and site-specific authorizations are considered.

The design features and their wording are matters of policy. As such, specific wording is subject to change, primarily through administrative review, not through the RMP and EIS process. Any further changes that may be made in the continuing refinement of these design features and any development of program-specific standard procedures will be handled in another forum, which will include appropriate public involvement and input. These design features are not to be confused with actual oil and gas stipulations, which can be found in Appendix L."

Table F-1
Implementation-Level Design Features

Resource	Design Feature	Objective
Sensitive Soils	Prior to surface disturbance on sensitive soils, a reclamation plan will be approved by the BLM Authorized Officer. The plan would demonstrate the following: (1) no other practicable alternatives exist for relocating the activity, (2) the activity will be located to reduce effects on soil and water resources, (3) site productivity will be maintained or restored, (4) surface runoff and sedimentation will be adequately controlled, (5) on- and off-site areas will be protected from accelerated erosion, (6) no areas susceptible to mass wasting will be disturbed and (7) surface-disturbing activities will be prohibited during extended wet periods.	**Objective:** To maintain the chemical, physical, and biotic properties of soils, this includes maintaining the soil's productivity, stability, and biotic properties. This will prevent excessive erosion and potential mass wasting and will improve the likelihood of successful reclamation.

Resource	Design Feature	Objective
Slope	Surface disturbances are subject to the following best management practices (BMPs): Prior to surface disturbance on slopes over 30 percent, an engineering/reclamation plan will be approved by the BLM Authorized Officer. Such plan must demonstrate how the following will be accomplished: Site productivity will be restored; surface runoff will be adequately controlled; off-site areas will be protected from accelerated erosion, such as rilling, gullying, piping, and mass wasting; water quality and quantity will be in conformance with state and federal water quality laws; surface-disturbing activities will not be conducted during extended wet periods; construction will not be allowed when soils are frozen.	**Objective:** To maintain soil productivity, provide necessary protection to prevent excessive soil erosion on steep slopes and to avoid areas subject to slope failure, mass wasting, piping, or excessive reclamation problems.
Source Water Protection Areas	Surface disturbance and disrupting activities would not be located in State-designated source water protection areas.	**Objective:** To protect human health by minimizing the potential contamination of public water systems. Source water is untreated water from streams, rivers, lakes, or aquifers used to supply public water systems. Ensuring that source water is protected from contamination can reduce the costs of treatment and risks to public health. This practice would protect the State-designated source water protection areas that protect public water systems from potential contamination.
Water, Riparian, Wetland, and Floodplains	Surface disturbance and disrupting activities will not occur in perennial or intermittent streams, lakes, ponds, reservoirs, 100-year floodplains, wetlands, and riparian areas, unless the appropriate environmental review indicates that such actions are the only practicable alternative.	**Objective:** To protect the unique biological and hydrological features and functions associated with perennial and intermittent streams, lakes, ponds, reservoirs, floodplains, wetlands, and riparian areas.
Water, Riparian, Wetlands	Surface disturbance will be controlled within 300 feet of riparian and wetland areas. Surface-disturbing activities will require a plan with design features that demonstrate how all actions would maintain or improve the functionality of riparian/wetland areas. The plan will address (a) potential effects on riparian and wetland resources, (b) mitigation to reduce effects to acceptable levels (including timing restrictions), (c) post-project restoration, and (d) monitoring (the operator must conduct monitoring capable of detecting early signs of changing riparian and wetland conditions).	**Objective:** To protect the unique biological and hydrological features associated with wetlands and riparian areas. Disturbances adjacent to wetland and riparian areas (including road use) can adversely affect these sensitive areas. This practice would protect these features from the indirect effects of activities on the nearby surface. This would also encompass the floodplain along most first- to third-order streams.

Resource	Design Feature	Objective
Winter Range (Pronghorn, Elk, Moose, Bighorn Sheep, Mule Deer, and Whitetail Deer)	Prior to surface disturbance and disrupting activities, the proponent will prepare a plan as a component of the application to be approved by the BLM Authorized Officer with confirmation from the state wildlife management agency. The proponent will not initiate surface-disturbing activities unless the Authorized Officer has approved the plan. The plan must demonstrate to the Authorized Officer's satisfaction that the function and suitability of the habitat will not be impaired.	**Objective:** To protect during mild to severe winters the winter range of big game identified by the BLM as priority species for management, as follows: white-tailed deer, mule deer, elk, pronghorn, moose, and bighorn sheep.
Elk Calving Grounds	Prior to surface disturbance and disrupting activities, the proponent will prepare a plan as a component of the project application to be approved by the BLM Authorized Officer, with confirmation from the state wildlife management agency. The proponent should not initiate surface-disturbing activities unless the Authorized Officer has approved the plan. The plan must demonstrate to the Authorized Officer's satisfaction that the function and suitability of the habitat would not be impaired.	**Objective:** To protect traditional elk calving ground habitat crucial for successful recruitment of calves.
Bighorn Sheep Range	Prior to surface disturbance and disrupting activities, the proponent will prepare a plan as a component of the project application to be approved by the BLM Authorized Officer, with confirmation from the state wildlife management agency. The proponent should not initiate surface-disturbing activities unless the Authorized Officer has approved the plan. The plan must demonstrate to the Authorized Officer's satisfaction that the function and suitability of the habitat would not be impaired.	**Objective**: To protect bighorn sheep and their habitats, a BLM priority species for management.
Lentic Fisheries	No surface disturbance or disrupting activities are allowed within one-quarter mile of designated reservoirs with fisheries.	**Objective:** To protect lentic fisheries habitat.
Lotic Fisheries	Surface disturbance or disrupting activities are prohibited within 0.5 mile from the centerline of streams or 0.5 mile from bankfull edge of lakes and reservoirs containing Class 1 and Class 2 fisheries, as defined by Montana Fish, Wildlife and Parks (MFWP) Crucial Areas Assessment Game Fish Quality.	**Objective:** To ensure healthy aquatic habitats are maintained along Class 1 and Class 2 fisheries.
Special Status Fisheries	No surface disturbance or disturbing activities are allowed within 0.5 mile of the centerline of streams that are identified by the BLM as having high restoration potential for westslope cutthroat trout, Yellowstone cutthroat trout, arctic grayling, or bull trout.	**Objective**: To ensure healthy aquatic and riparian habitats are maintained in and along streams with the potential for native fish reintroductions and restoration.

Resource	Design Feature	Objective
Westslope Cutthroat Trout	No surface disturbance or disturbing activities are allowed within one-half mile from centerline of streams containing known populations of 90% – 100% genetically pure Westslope Cutthroat trout. Prior to surface disturbance and disrupting activities, the proponent will prepare a plan as a component of the project application to be approved by the BLM Authorized Officer, with confirmation from the state wildlife management agency. The proponent should not initiate surface-disturbing activities unless the Authorized Officer has approved the plan. The plan must demonstrate to the Authorized Officer's satisfaction that the function and suitability of the habitat would not be impaired.	**Objective**: To ensure healthy aquatic habitat exists in drainages important to the viability of upper Missouri River Basin westslope cutthroat trout.
Blue Ribbon Trout Stream	No surface disturbance or disturbing activities are allowed within one-half mile from the centerline of Class I fishery streams (Blue Ribbon Trout streams). Prior to surface disturbance and disrupting activities, the proponent will prepare a plan as a component of the project application to be approved by the BLM Authorized Officer, with confirmation from the state wildlife management agency. The proponent should not initiate surface-disturbing activities unless the Authorized Officer has approved the plan. The plan must demonstrate the function and suitability of the habitat would not be impaired. An exception may be granted if the Montana Fish, Wildlife and Parks modifies the Class I fisheries rating. Application of the following mitigation measures apply: a) No net increase in sediment over existing condition. b) No adverse effects on water quality and quantity.	**Objective**: To ensure healthy aquatic habitat are maintained along Class I fisheries.

Resource	Design Feature	Objective
Bull Trout	No surface disturbance or disturbing activities allowed within one-half mile from centerline of streams containing known populations of Bull Trout. Prior to surface disturbance and disrupting activities, the proponent will prepare a plan as a component of the project application to be approved by the BLM Authorized Officer, with confirmation from the state wildlife management agency. The proponent should not initiate surface-disturbing activities unless the Authorized Officer has approved the plan. The plan must demonstrate the function and suitability of the habitat would not be impaired. An exception may be granted if Montana Fish, Wildlife and Parks determines the stream is no longer considered important to the viability of the species or, if after a site assessment is conducted and if the operator can demonstrate in a surface use plan of operations that adverse effects can be eliminated and activities would not affect sensitive trout populations. Apply the following mitigation measures: a) No net increase in sediment over existing condition. b) No adverse effects on water quality and quantity.	**Objective**: To ensure healthy aquatic habitat exists in drainages important to the viability of Bull Trout.
Water bird Nesting Colony	Surface disturbance and disrupting activities are prohibited within 0.25 mile of a water bird nesting colony. Priority species for management are special status species and the following species, regardless of special status designation: • American white pelican • Black-crowned night heron • Black tern • Caspian tern • Clark's grebe • Common tern • Double-crested cormorant • Forster's tern • Franklin's gull • Great blue heron • White-faced ibis	**Objective**: To protect colonial-nesting birds identified as BLM priority species for management.

Resource	Design Feature	Objective
Water bird Nesting Colony	Apply timing limitation (TL) within 0.5 mile[2] of a water bird nesting colony from April 1 to July 15. Priority species for management are special status species and the following species, regardless of special status designation: • American white pelican • Black-crowned night heron • Black tern • Caspian tern • Clark's grebe • Common tern • Double-crested cormorant • Forster's tern • Franklin's gull • Great blue heron • White-faced ibis	**Objective:** To protect nesting activities associated with colonial-nesting birds identified as BLM priority species for management.
Crucial Winter Range	Surface disturbance and disrupting activities that would adversely impact crucial winter range are prohibited for the following BLM priority species: • Bighorn sheep • Elk • Greater sage-grouse • Moose • Mule deer • Pronghorn • Whitetail deer	**Objective:** To protect in the most severe of winters the winter ranges crucial to the survival of 80 percent of the species identified as BLM priority species.
Sharp-tailed Grouse Lek[3]	Surface disturbance and disrupting activities are prohibited on and within 0.5 mile of the perimeter of leks.	**Objective:** To protect leks for sharp-tailed grouse, a BLM priority species for management.
Sharp-tailed Grouse Lek	Surface disturbance and disrupting activities are prohibited within 2 miles of the perimeter of sharp-tailed grouse leks from April 1 to July 15.	**Objective:** To protect nesting activities associated with sharp-tailed grouse, identified as BLM priority species.
Bats	Prohibit surface disturbance or disruption that would adversely effect bats or their habitat within 0.25 mile of identified bat maternity roosts and hibernation areas.	**Objective:** To protect bat maternity roosts and hibernation habitat.

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[2] Bendel and Therres (1999) recommend buffer distances of 0.5 mile, one of the few sources who specifically address disturbance related to surface occupancy rather than just human disturbance. However, other sources suggest shorter distances for disturbance during the breeding season. Additional rationale for distances related to colonial water birds is needed.

[3] Based on conversations with Aaron Robinson, a doctoral student looking at the effects of oil and gas development on sharp-tailed grouse, the 0.25-mile buffer and a June 15-30 ending dates for nesting are probably inadequate. As a result, the revisions identified in the stipulations are recommended.

Resource	Design Feature	Objective
Raptors[4]	Surface disturbance and disruptive activities are prohibited within 0.25 mile of raptor nest sites active within the preceding 7 years[5] for the following BLM priority species for management: • Burrowing owl • Ferruginous hawk • Golden eagle • Long-eared owl • Merlin • Northern goshawk • Osprey • Prairie falcon • Red-tailed hawk • Sharp-shinned hawk • Short-eared owl • Swainson's hawk	**Objective:** To protect nest sites of raptors identified as BLM priority species.
Raptors	Surface disturbance and disrupting activities are prohibited within 0.5 mile of active raptor nest sites from March 1 through July 31.	**Objective:** To protect nesting activities associated with raptors identified as BLM priority species.
Bald Eagle	Surface occupancy and use is prohibited within 0.5 mile of bald eagle nest sites active within the preceding 5 years.[6]	**Objective:** To protect nest sites and nesting activities of bald eagles, a BLM priority species.
Peregrine Falcon	Surface disturbance and disrupting activities are prohibited within 1 mile of peregrine falcon nest sites active within the preceding 7 years.[7]	**Objective:** To protect nest sites and nesting activities of peregrine falcons, a BLM priority species.

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[4] Raptor definition for application of stipulations includes raptor species without species-specific stipulations noted above. The exact list may vary by RMP but may include the following species: golden eagle, northern goshawk, ferruginous hawk, red-tailed hawk, sharp-shinned hawk, Swainson's hawk, prairie falcon, merlin, osprey, burrowing owl, long-eared owl, and short-eared owl. Because nest structures are often used by different species throughout the life of the structure, these distances and dates should be considered minimums, and the site-specific assessment should include the needs of specific species present at the time of the action and should be adjusted accordingly. The 0.25-mile buffer was the distance cited for most of these species in Romin and Muck (2002). Additional species-specific information can be found in Whittington and Allen (2008). Species-specific stipulations may be developed if warranted in the planning area; however, the language of the stipulation should not vary from these examples, only the distances and dates used.

[5] Seven years was selected based on the period that a known preferred prey species fluctuates from population highs to lows (C. White, Brigham Young University 1998, pers. comm., in Romin and Muck 2002). Expanded species-specific information for the nest period can be found in Whittington and Allen (2008).

[6] Five years was selected for bald eagles based on United States Fish and Wildlife Service (USFWS) National Bald Eagle Management Guidelines (2007) recommendations.

[7] American Peregrine Falcon Recovery Plan (Rocky Mountain Southwest Populations), USFWS, (1984) and Whittington and Allen (2008).

Resource	Design Feature	Objective
Piping Plover	Surface disturbance and disrupting activities are prohibited within 0.25 mile of piping plover nesting habitat.	**Objective:** To protect the nesting habitat of the federally threatened piping plover.
Prairie Dog Habitat	Surface disturbance and disrupting activities are prohibited within 0.25 mile of prairie dog colonies active within the past 10 years.[8]	**Objective:** To protect prairie dog habitat, a BLM priority species, as well as obligate species.
Bighorn Sheep Lambing	Surface disturbance and disrupting activities are prohibited within bighorn sheep lambing areas.	**Objective:** To protect traditional bighorn sheep lambing habitat, crucial for successful recruitment of bighorn sheep lambs.
Pallid Sturgeon	Surface disturbance and disrupting activities are prohibited within 0.25 mile of the water's edge of the Missouri River to protect pallid sturgeon.	**Objective:** To protect the habitat of the federally endangered pallid sturgeon.
Mountain Plover	Surface disturbance and disrupting activities are prohibited within mountain plover habitat.	**Objective:** To protect mountain plover habitat.
Mountain Plover	Surface disturbance and disrupting activities are prohibited within 0.25 mile of mountain plover habitat from April 1 through July 15.	**Objective**: To protect nesting activities associated with mountain plovers, a BLM priority species.
Greater Sage-Grouse	See **Appendix O**, Greater Sage-Grouse Regional Mitigation Strategy, of the Lewistown RMP/EIS.	
Sprague's Pipit	Surface disturbance and disrupting activities are prohibited from April 15 through July 15 in Sprague's pipit habitat.[9]	**Objective:** To protect nesting activities of Sprague's pipit, a BLM priority species.
Cultural Resources	Surface disturbance is prohibited within National Register of Historic Places (NRHP)-eligible properties, districts, and cultural sites allocated to conservation for future, traditional, and public use. Some leased areas may be found to contain historical properties or resources protected under the National Historic Preservation Act, the American Indian Religious Freedom Act, the Native American Graves Protection and Repatriation Act, Executive Order 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the National Historic	**Objective**: To protect NRHP-eligible properties, districts, and cultural sites allocated to conservation for future, traditional, and public use. Standard exceptions and modifications apply.

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[8] The 0.25-mile buffer would account for fluctuations in the size of prairie dog colonies and serves as a surrogate for the maximum extent of areas occupied by prairie dogs at any time during the last 10 years.

[9] Sprague's pipit habitat is defined as the moderately suitable and optimal habitat classes from the Montana Natural Heritage Program Maxent Inductive Model of Sprague's pipit breeding habitat. A similar condition of approval would be applied for those applications for permits to drill on parcels not identified as optimal or moderately suitable Sprague's pipit habitat, but where pipits are located or would be expected to be, based on habitat.

Resource	Design Feature	Objective
Cultural Resources *(continued)*	Preservation Act and other authorities. The BLM may require modification to development proposals to protect such properties or may disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized, or mitigated.	*(see above)*
Cemeteries	Cemeteries occupy portions of the lands in this project area. Surface disturbance will be excluded from the cemetery and a 300-foot buffer zone around it.	**Objective**: To protect cemetery properties and gravesites.
Cultural Resource Inventories Sacred and Historic Properties	The surface management agency is responsible for ensuring that the affected lands are examined to determine of cultural resources are present and to specify design features. Leased land is next to known sacred sites and historical properties and contains high potential for NRHP-eligible historical and cultural properties. Project proponents are notified that archaeological resource inventory and mitigation costs may be high in this area. A cultural plan of operations will be developed in consultation with the Lewistown Field Office or Butte Field Office and must be approved before field development takes place. All surface use plans will be presented to the Lewistown Field Office or Butte Field Office archaeologist for review.	**Objective:** To protect cultural resources. **Objective:** To protect sacred and historical properties.
Paleontological Areas	Surface disturbance is prohibited within Egg Mountain and the Blacktail Paleontological Area.	**Objective:** To preserve and protect significant vertebrate fossils and paleontological locales.
Lands with Wilderness Characteristics	Surface disturbance and disrupting activities are prohibited in areas that are managed to protect wilderness characteristics.	**Objective**: To protect wilderness characteristics.
Recreation Areas	No surface disturbance or disrupting activities are allowed within developed recreation areas and undeveloped recreation areas receiving concentrated public use.	**Objective:** Protect developed recreation areas and undeveloped recreation areas receiving concentrated public use.
	No surface disturbance or disrupting activities are allowed within 0.5 mile of developed recreation sites.	**Objective:** To recognize and protect the public's opportunity for quality recreation experiences at those sites developed for that purpose. Since BLM-administered recreation sites are generally developed to support the use of surrounding lands, the 0.5-mile buffer offers some protection for perpetuating those opportunities that the site was developed for, as well as protecting capital investments at the site.

Resource	Design Feature	Objective
Recreation Areas *(continued)*	No surface disturbance or disrupting activities are allowed within 0.25 mile of developed recreation sites, regardless of administering agency.	**Objective**: To recognize and protect the public's opportunity for quality recreation experiences at those sites developed for that purpose. Since BLM-administered recreation sites are generally developed to support the use of the surrounding lands, the 0.5-mile buffer offers some protection for perpetuating those opportunities that the site was developed for, as well as protecting capital investments at the site.
Fishing Reservoirs (Judith Extensive Recreation Management Area)	No surface disturbance or disruptive activities are allowed within 0.25 mile of designated reservoirs with fisheries.	**Objective:** To protect recreational fisheries.
Visual Resource Management (VRM) Class II	In order to retain the existing character of the landscape (VRM Class II Objective), surface-disturbing activities will be located, designed, constructed, operated, and reclaimed so that they should not attract attention to the casual observer within 2 years from when construction begins.	**Objective:** To protect visual resource values, while allowing development and related activities that have been mitigated to retain the character of the existing area.
Land Use Authorizations	Land use authorizations incorporate specific surface land uses allowed on BLM-administered lands by Authorized Officers and those surface uses acquired by the BLM on lands administered by other entities. These BLM authorizations include rights-of-way (ROW), leases, permits, conservation easements, and recreation and public purpose leases and patents. The rights acquired, reserved, or withdrawn by the BLM for specified purposes are for non-oil and gas leases, conservation easements, archaeological easements, road easements, fence easements, and administrative site withdrawals. The existence of such land use authorizations will not prevent surface-disturbing activities. The locations of land use authorizations are noted on the oil and gas plats and in LR2000. The plats are a visual source noting location; LR2000 provides location by legal description through the Geographic Cross Reference Program. The specifically authorized acreage for land use should be avoided by developers. All authorized surface land uses are valid claims to prior existing rights, unless the authorization states otherwise.	**Objective:** Address the needs of industry, utilities, the public, and government entities for land use authorizations, while minimizing adverse effects on other resource values.

Resource	Design Feature	Objective
National Scenic Trails	No surface disturbance or disturbing activities are allowed within 0.5 mile of the Continental Divide National Scenic Trail.	**Objective**: Preserve and protect scenic character of the landscape along the trail.
National Historic Trails	Surface disturbance and disrupting activities are prohibited within the National Trail Management Corridor of designated National Historic Trails; this includes the Lewis and Clark Trail and the Nez Perce Trail.	**Objective:** The purpose of BMPs is to protect the nature and purposes, trail resources, qualities, values, and associated settings, and primary use of the historic trail, in accordance with the National Trails System Act.
Backcountry Conservation Areas	Surface disturbance and disturbing activities are subject to the following operating constraint: Prior to surface use, occupancy or disturbance in BCAs, a plan shall be prepared by the proponent and approved by the AO, with notification to MFWP. The plan must facilitate the long-term maintenance of big game wildlife populations and promote public access to support wildlife-dependent recreation and hunting opportunities. Proposed activities may not alter or depreciate important recreational values located within Backcountry Conservation Areas.	**Objective:** To facilitate long-term maintenance of big game wildlife populations and access to support primitive recreation and hunting opportunities.

F.2 GENERAL BEST MANAGEMENT PRACTICES

F.2.1 Air Resource BMPs

Developed by: Bureau of Land Management

Publication reference: BLM/Colorado State Office, Updated July 2015

Internet website: https://www.blm.gov/sites/blm.gov/files/uploads/program_natural%20resources_soil%20air%20water_airco_quick%20link_CARPP.pdf

Description: Identifies (in Table VI-I) a range of typical BMPs for protecting air resources during oil and gas development and production.

F.2.2 Erosion and Sediment Control Practices: Field Manual

Developed by: Prepared for the Montana Department of Transportation

Publication reference: FHWA/MT-030003/8165

Available from: National Technical Information Service, Springfield, VA 21161

Description: The Erosion and Sediment Control Best Management Practices Construction Field Manual was developed to assist in design, construction, and post-construction phases of Montana Department of Transportation projects. This manual provides background to concepts of erosion and sediment control. Most of Montana Department of Transportation's BMPs are listed in the manual based on application categories. Each BMP is described; its applications and limitations are listed, as well as its design criteria. Construction phase and post-construction phase BMPs are described. This manual is a field guide and a condensed version of the Erosion and Sediment Control Design Construction Best Management Practices Manual. For more detailed discussion on topic found within, refer to the Erosion and Sediment Control Construction Best Management Practices Manual.

F.2.3 Erosion and Sediment Control Practices: Reference Manual

Developed by: Prepared for the Montana Department of Transportation

Publication reference: FHWA/MT-030003/8165

Available from: National Technical Information Service, Springfield, VA 21161

Description: The Erosion and Sediment Control Construction Best Management Practices Manual was developed to assist in the design, construction, and post-construction phases of Montana Department of Transportation projects. This manual provides background for state and federal regulations associated with erosion and sediment control, including a general overview of the erosion and sediment processes. BMPs are listed in the manual and are based on application categories. Each BMP is described; its applications and limitations are listed, as well as its design criteria. The design phase includes development of construction plans, notices of intent (NOIs), and stormwater pollution prevention plans (SWPPP). The construction phase includes the finalization of the SWPPPs and NOIs and the implementation of BMPs. The post-construction phase includes monitoring, maintenance, and removal activities.

F.2.4 Fluid Minerals BMPs

Developed by: Bureau of Land Management

Publication references: BLM/WO/ST-06/021+3071; BLM/OC/ST-15/004+8400

Internet websites:

- http://www.blm.gov/bmp/
- https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/operations-and-production/the-gold-book
- https://www.blm.gov/download/file/fid/20540

Description: The BMPs for oil and gas demonstrate practical ideas that may eliminate or minimize adverse effects from oil and gas development on public health and the environment, landowners, and natural resources, enhance the value of natural and landowner resources, and reduce conflict. The publication reference is to the "Gold Book," which is formally titled "Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. In addition, the first Internet citation is for a location maintained by the BLM's Washington, DC, Office, containing general and technical information on the use and application of BMPs. The second location refers the reader directly to an online version of the "Gold Book"; the third location refers the reader to information regarding the use of select paint colors for oil and gas facilities.

F.2.5 Montana Guide to the Streamside Management Zone Law

Developed by: Montana Department of Natural Resources and Conservation Service Forestry Bureau, in cooperation with the Montana Department of Environmental Quality, Montana Logging Association, Montana Wood Products Association, Plum Creek Timber LP, United States Department of Agriculture (USDA), Forest Service, and the BLM.

Publication reference: Revised August 2002

Available from: Montana Department of Natural Resources and Conservation, 2705 Spurgin Road, Missoula, MT 59801-3199, (406) 542-4300, or from the local Montana Department of Natural Resources and Conservation (DNRC) field office

Description: The Montana Guide to the Streamside Management Zone Law is a field guide to compliance with State of Montana Law 77-5-301(1) MCA. Complementary BMPs are found in the Water Quality BMPs for Montana Forests (also referenced in this appendix). The guide provides definitions, stream classifications, and guidelines on the seven forest practices prohibited by Montana law in streamside management zones (SMZs): broadcast burning; operation of wheeled or tracked vehicles, except on established roads; the practice of clear-cutting forests; the construction of roads (except when necessary to cross a stream or wetland); the handling, storage, application, or disposal of hazardous or toxic materials in a manner that pollutes streams, lakes, or wetlands or that may damage or injure humans, land, animals, or plants; the side casting of road material into a stream, lake, wetland, or watercourse; and the deposit of slash in streams, lakes, or other water bodies.

F.2.6 Montana Nonpoint Source Management Plan

Developed by: Montana Department of Environmental Quality, Water Quality Planning Bureau, Watershed Protection Section

Publication reference: 2017

Available from: Montana Department of Environmental Quality, Water Quality Planning Bureau, Watershed Protection Section, PO Box 200901, Helena, MT 59620-0901

Internet website: https://deq.mt.gov/Portals/112/Water/WPB/Nonpoint/Publications/Annual%20Reports/2017NPSManagementPlanFinal.pdf

Description: This document describes the Montana Department of Environmental Quality's (DEQ) updated strategy for controlling nonpoint source (NPS) water pollution, which is the state's single largest source of water quality impairment. NPS pollution is contaminated runoff from the land surface that can be generated by most land use activities, including agriculture, forestry, urban and suburban development, and mining. Common NPS pollutants are sediment, nutrients, temperature, heavy metals, pesticides, pathogens, and salt. The purposes of the Montana NPS Pollution Management Plan are to inform the state's citizens about NPS pollution problems and to establish goals, objectives, and long-term and short-term strategies for controlling NPS pollution statewide. The goal of Montana's NPS Management Program is to protect and restore water quality from the effects of nonpoint sources of pollution in order to provide a clean and healthy environment.

F.2.7 Montana Placer Mining BMPs

Developed by: Montana Bureau of Mines and Geology

Publication reference: Special Publication 106, October 1993

Available from: Montana Bureau of Mines and Geology, Main Hall, Montana College of Mineral Science and Technology, Butte MT 59701

Description: Provides guidelines for planning, erosion control, and reclamation in arid to semiarid, alpine, and subalpine environments and to prevent or decrease environmental damage and water quality degradation.

F.2.8 Water Quality BMPs for Montana Forests

Developed by: Montana State University Extension Service

Publication reference: R. Logan. 2001. Water Quality BMPs – Best Management Practices for Montana Forests. EB158, MSU Extension Forestry, Missoula, Montana

Available from: MSU Extension Forestry, 32 Campus Dr., Missoula, MT 59812, or from MSU Extension Publications, PO Box 172040, Bozeman, MT 59717

Description: Discusses methods for managing forest land while protecting water quality and forest soils. It is intended for all forest land in Montana, including non-industrial private, forest industry, and state or federal owned forests. These are preferred (but voluntary) methods that go beyond Montana State Law SMZs. It includes definitions, basic biological information, and BMPs for streamside management zones; road design, use, planning and locating, construction, drainage, and closure; and stream crossings, soil, timber harvesting methods, reforestation, winter planning, and clean up.

F.2.9 Wind Energy BMPs

Developed by: Bureau of Land Management

Publication reference: Wind Energy Development Programmatic EIS

Available from: Final EIS Chapter 2 (section 2.2.3.2) at http://windeis.anl.gov/

Description: As part of the proposed action, the BLM developed BMPs for each major step of the wind energy development process, including site monitoring and testing, plan of development preparation, construction, operation, and decommissioning. General BMPs are available for each step, and certain steps also include specific BMPs to address the following resource issues: wildlife and other ecological resources, visual resources, roads, transportation, noise, noxious weeds and pesticides, cultural and historical resources, paleontological resources, hazardous materials and waste management, stormwater, human health and safety, monitoring program, air emissions, and excavation and blasting activities.

Developed by: Bureau of Land Management

Publication reference: Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands, First Edition 2013

Available from: http://blmwyomingvisual.anl.gov/docs/BLM_RenewableEnergyVisualBMPs_LowRes.pdf

Description: This publication presents 122 BMPs to avoid or reduce potential visual effects associated with siting, designing, constructing, operating, and decommissioning utility-scale renewable energy generation facilities, including wind, solar, and geothermal facilities. The publication includes BMPs for avoiding and reducing visual effects associated with the energy generation components of a facility, such as wind turbines or solar energy collectors, and includes BMPs for reducing visual effects associated with ancillary components, such as electric transmission, roads, and structures.

F.2.10 Communication Tower BMPs

Developed by: United States Fish and Wildlife Service

Publication reference: Service Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers

Internet website: http://www.fws.gov/habitatconservation/com_tow_guidelines.pdf

Description: These guidelines were developed by USFWS personnel from research conducted in several eastern, mid-western, and southern states and have been refined through regional review. They are based on the best information available at this time and are the most prudent and effective measures for avoiding bird strikes at towers.

- Any company/applicant/licensee proposing to construct a new communications tower should be strongly encouraged to collocate the communications equipment on an existing communication tower or other structure (e.g., billboard, water tower, or building mount). Depending on tower load factors, from 6 to 10 providers may collocate on an existing tower.
- If collocation is not feasible and a new tower or towers are to be constructed, communications service providers should be strongly encouraged to construct towers no more than 199 feet above ground level, using construction techniques that do not require guy wires (e.g., use a lattice structure or monopole). Such towers should not be lighted, if Federal Aviation Administration (FAA) regulations permit.
- If constructing multiple towers, providers should consider the cumulative effects of all of those towers on migratory birds and threatened and endangered species, as well as the effects of each individual tower.
- If at all possible, new towers should be sited within existing “antenna farms,” which are clusters of towers. Towers should not be sited in or near wetlands, other known bird concentration areas (e.g., state or federal refuges, staging areas, or rookeries), in known migratory or daily movement flyways, or in habitat of threatened or endangered species. Towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.
- If towers taller than 199 feet must be constructed, which would require lights for aviation safety, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Unless otherwise required by the FAA, only white (preferable) or red strobe lights should be used at night, and these should be the minimum number, minimum intensity, and

minimum flashes per minute (longest duration between flashes) allowable by the FAA. The use of solid red or pulsating red warning lights at night should be avoided. Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Red strobe lights have not yet been studied.

- Tower designs using guy wires for support and that are proposed for known raptor or water bird concentration areas or daily movement routes, or in major diurnal migratory bird movement routes or stopover sites, should have daytime visual markers on the wires to prevent collisions by these diurnal species. (For guidance on markers, see Avian Power Line Interaction Committee [(APLIC]. 1994. Mitigating Bird Collisions with Power Lines: The State of the Art in 1994. Edison Electric Institute, Washington, DC; and APLIC. 1996. Suggested Practices/or Raptor Protection on Power Lines. Edison Electric Institute Raptor Research Foundation, Washington, DC. Copies can be obtained via the Internet at https://www.eei.org/resourcesandmedia/products/Pages/ProductDetails.aspx?prod=67C93494-D8BE-4FE9-AE6B-4ADE061A6795&type=P or by calling 1-800/334-5453).
- Towers and appendant facilities should be sited, designed, and constructed so as to avoid or minimize habitat loss in and next to the tower footprint. However, a larger tower footprint is preferable to the use of guy wires in construction. Road access and fencing should be minimized to reduce or prevent habitat fragmentation and disturbance and to reduce aboveground obstacles to birds in flight.
- If significant numbers of breeding, feeding, or roosting birds are known to habitually use the proposed tower construction area, the tower should be relocated to an alternate site. If this is not an option, seasonal restrictions on construction may be advisable in order to avoid disturbance during periods of high bird activity.
- In order to reduce the number of towers needed in the future, the applicant/licensee should be encouraged to design new towers structurally and electrically to accommodate antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), unless this design would require the addition of lights or guy wires.
- Security lighting for ground facilities and equipment should be shielded to direct light downward and within the boundaries of the site.
- If a tower is constructed or proposed for construction, USFWS personnel or researchers from the Communication Tower Working Group should be allowed access to the site to evaluate bird use, to conduct dead bird searches, to place net catchments below the towers but above the ground, and to place radar, GPS, infrared, thermal imagery, and acoustical monitoring equipment to assess and verify bird movements and to gain information on the effects of various tower sizes, configurations, and lighting systems.
- Towers no longer in use or determined to be obsolete should be removed within 12 months of cessation of use.

F.2.11 Grazing Management BMPs (Guidelines)

Guidelines for grazing management are the types of methods and practices determined to be appropriate to ensure that rangeland health standards can be met or significant progress can be made toward meeting the standards. Guidelines are BMPs, treatments, and techniques and implementation of range of improvements that will help achieve rangeland health standards. Guidelines are flexible and are applied in site-specific situations. Standards for Rangeland Health and Guidelines for Livestock Grazing

Management for the Lewistown Field Office can be found at https://www.blm.gov/sites/blm.gov/files/Lewistown%20MT%20standards%20for%20rangeland%20health%20and%20guidelines%20for%20grazing.pdf. Standards for Rangeland Health and Guidelines for Livestock Grazing Management for the Butte Field Office can be found at https://www.blm.gov/sites/blm.gov/files/Butte%20MT%20standards%20for%20rangeland%20health%20and%20guidlines%20for%20grazing.pdf.

F.2.12 Herbicide Special Operating Procedures

This plan incorporates by reference the 2016 Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement and adopts the Herbicide Treatment Standard Operating Procedures listed in Appendix B.

F.2.13 BLM BMPs

The website http://www.blm.gov/bmp/ provides an introduction to BLM BMPs. It has links to BLM contacts, general BMP Information, BMP frequently asked questions, BMP technical information, oil and gas exploration, the Gold Book, specific resource BMPs, and other BLM links.

F.2.14 Visual Resources

The website http://www.blm.gov/pgdata/content/wo/en/prog/Recreation/recreation_national/RMS.html provides numerous design techniques that can be used to reduce the visual effects from surface-disturbing projects. The techniques described should be used in conjunction with BLM's visual resource contrast rating process, wherein both the existing landscape and the proposed development or activity are analyzed for their basic element of form, line, color, and texture. In addition, the BLM's Best Management Practices for Reducing Visual effects of Renewable Energy Facilities on BLM-Administered Lands, First Edition 2013, presents 122 BMPs to avoid or reduce potential visual effects associated with siting, designing, constructing, operating, and decommissioning utility-scale renewable energy generation facilities, including wind, solar, and geothermal facilities. It is available at: http://blmwyomingvisual.anl.gov/docs/BLM_RenewableEnergyVisualBMPs_LowRes.pdf.

F.2.15 Renewable Energy Development

The following resources provide information on BMPs related to renewable energy development.

- Wind Energy Development Programmatic Environmental Impact Statement—http://windeis.anl.gov/documents/fpeis/index.cfm
- BLM Instruction Memorandum 2009-043, Rights-of-Way, Wind Energy—https://www.blm.gov/policy/im-2009-043
- Solar Energy Development Programmatic Environmental Impact Statement—http://solareis.anl.gov/
- Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands, First Edition 2013—http://blmwyomingvisual.anl.gov/docs/BLM_RenewableEnergyVisualBMPs_LowRes.pdf

F.2.16 Healthy Watersheds

The website http://www.epa.gov/owow/nps/ provides conservation approaches and tools designed to ensure healthy watersheds remain intact. It also provides site-specific examples.

F.2.17 Storm Water BMPs

The website https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu provides BMPs designed to meet the minimum requirements for six control measures specified by the United States Environmental Protection Agency's (EPA) Phase II Stormwater Program.

F.2.18 Pasture, Rangeland, and Grazing Operations BMPs

The website http://www.epa.gov/oecaagct/anprgbmp.html provides BMPs compiled by the EPA to prevent or reduce effects from livestock grazing.

F.2.19 National Range and Pasture Handbook

The website http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/landuse/rangepasture/?cid=stelprdb1043084 provides procedures to support USDA Natural Resources Conservation Service (NRCS) policy for the inventory, analysis, treatment, and management of grazing land resources.

F.2.20 Montana Nonpoint Source Management Program

The website http://www.deq.mt.gov/wqinfo/nonpoint/nonpointsourceprogram.mcpx provides links to information on funding for implementing nonpoint source controls, examples of control projects, and Montana's current NPS Management Plan. This plan identifies and provides details for BMPs to improve and maintain water quality.

The following would be applied, if warranted, to any BLM authorized activity:

- The total disturbance area would be minimized to the extent possible.
- Surface disturbances would be collocated in areas of previous or existing disturbance to the extent technically feasible.
- Linear facilities would be located in the same trenches (or immediately parallel to) and when possible, installed at the same time.
- Plans of development would be required for major ROWs, renewable energy, and minerals development. Such plans would identify measures for reducing effects.
- Where the federal government owns the surface and the mineral estate is in nonfederal ownership, the BLM would apply appropriate fluid mineral BMPs to surface development.
- Facilities and infrastructure would have to be removed when use is completed.
- Vegetation would be removed only when necessary; mowing would be preferred. If mowed, when possible, work would be performed when vegetation is dormant.
- Two-track (primitive) roads would be used when possible.
- Utilization of the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (i.e., The Gold Book) would be used for the design of roads, utilities, and oil and gas operations.
- Using directional drilling, drilling multiple wells from the same pad, commingling, making use of recompletion, or using existing well pads would be required to the extent technically feasible to minimize surface effects from oil and gas development.
- Utilities would be ripped or wheel trenched whenever practical.

- Remote telemetry would be used to reduce vehicle traffic to the extent technically feasible (e.g., monitoring oil and gas operations).
- Perennial streams would be crossed using bore crossing (directional drill) or another environmentally sound method.
- For activities resulting in major surface-disturbance, as determined by the BLM Authorized Officer, a mitigation monitoring and reporting strategy would be developed and implemented (see the Lewistown RMP/EIS **Appendix B**, Implementation and Monitoring, for further guidance).
- Operations would avoid sensitive resources, including riparian areas, wetlands, floodplains, water bodies, and areas subject to erosion and soil degradation.
- The BLM would use, on a case-by-case basis, temporary or permanent enclosures (e.g., in woody draw or riparian areas) to promote species diversity, recruitment, and structure.
- Accelerated erosion, soil loss, and effects on water quality would be reduced by diverting stormwater and trapping sediment during activity.
- Pitless or aboveground closed-loop drilling technology would be used to the extent technically feasible. Drilling mud and completion fluids would be recycled for use in future drilling activities.
- Where needed, pits would be lined with an impermeable liner. Pits would not be placed in fill material or natural watercourses, and pits may not be cut or trenched.
- Fertilizer would not be applied within 500 feet of wetlands and water bodies.
- Vehicles and equipment would be serviced and refueled 500 feet from the outer edge of riparian areas, wet areas, and drainages.
- Activity may be restricted during wet or frozen conditions. Mechanized equipment would not be used if it would cause rutting to a depth of 4 inches or greater.
- Vehicles would be washed before being allowed to enter or leave a disturbance area to reduce the transport and establishment of invasive species.
- Invasive species plant parts would not be transported off-site without appropriate disposal measures.
- Alternative energy (solar or wind power) would be used to power new water source developments.
- Overhead power lines, where authorized, would follow the recommendations in the most recent guidance from APLIC (1994, as amended 2006, 2012).
- Weed management prescriptions would be included in all new treatment projects and incorporated into existing contracts, agreements, task forces, designated weed-free management areas, and land use authorizations that resulted in ground-disturbing activities.
- Whenever possible, ROWs would be constructed in or next to compatible ROWs, such as roads, pipelines, communications sites, and railroads.
- The operator would be responsible for locating and protecting existing pipelines, power lines, communication lines, and related infrastructure.
- Climate variability would be considered when proposing restoration seedings using native plants. Collecting from the warmer component of the species current range would be considered when selecting native species.

Appendix G

Reclamation

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TABLE OF CONTENTS

Section Page

APPENDIX G. RECLAMATION **G-1**

G.1 Introduction G-1
G.2 Objectives G-1
G.3 Reclamation Requirements G-1
  G.3.1 Manage all Waste Materials G-2
  G.3.2 Ensure Subsurface Integrity and Eliminate Sources of Ground and Surface Water Contamination G-2
  G.3.3 Ensure Surface Stability and Reestablish Slope Stability and Desired Topographic Diversity G-2
  G.3.4 Reconstruct and Stabilize Water Courses and Drainage Features G-2
  G.3.5 Maintain the Biological, Chemical, and Physical Integrity of Topsoil G-3
  G.3.6 Prepare Site for Revegetation G-3
  G.3.7 Establish a Desired Self-perpetuating Native Plant Community G-3
  G.3.8 Reestablish a Complementary Visual Composition G-3
  G.3.9 Manage Invasive Plants G-4
  G.3.10 Develop and Implement a Reclamation Monitoring and Reporting Strategy G-4
G.4 Seeding G-4

TABLES

Page

Table G-1 Lewistown Field Office Reclamation Seeding Mixtures G-5

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Appendix G. Reclamation

G.1 INTRODUCTION

Reclamation would be required for surface-disturbing activities. Some activities and areas, such as existing routes or routes or areas designated as open under future travel management, would be exempt. Other such activities and areas would be reviewed for exemption during the site-specific environmental analysis.

Reclamation is not the site restoration; instead, the long-term objective of reclamation is to set the course for eventual ecosystem restoration. A reclamation plan appropriate in detail and complexity and tailored to a specific surface-disturbing activity would be required and made a stipulation or condition of approval of any action. The level of detail for the reclamation plan should reflect the complexity of the project, the environmental concerns generated during project review, and the reclamation potential for the site.

This appendix details the elements that need to be considered during pre-disturbance authorization of any surface-disturbing activity and the post-disturbance steps required to ensure timely and proper site reclamation.

The reclamation plan will provide a framework to develop project-specific and site-specific reclamation actions and guide land management efforts toward a planned future condition for any surface-disturbing activity. Early coordination between the BLM and project proponents is necessary to produce the appropriate plan. The reclamation plan will serve as a binding agreement between a project proponent and the BLM for the expected reclamation condition of the disturbed lands. The BLM must periodically review and modify it as necessary to adjust to changing conditions or to correct any oversight. The reclamation plan may consist of required design features or mitigation measures, but must include sufficient monitoring requirements, reports, and components to ensure that it is adequate.

In preparing and reviewing reclamation plans, the BLM and the project proponent must set reasonable, achievable, and measurable reclamation goals and objectives that are consistent with the land use plan and are ecologically feasible. Achievable goals and objectives will ensure reclamation and will encourage a project proponent to conduct research on different aspects of reclamation for different environments. These goals and objectives should be based on available information and techniques, should offer incentives to both parties, and, as a result, should generate useful information for future use.

G.2 OBJECTIVES

The short-term objective is to immediately stabilize disturbed areas and to provide the necessary conditions to achieve the long-term objective, which is to facilitate eventual ecosystem reconstruction to maintain a safe and stable landscape and meet the desired outcomes.

G.3 RECLAMATION REQUIREMENTS

The following reclamation requirements apply to all surface-disturbing activities, including BLM-initiated activities, and must be addressed in each reclamation plan. These requirements also must be met before a bond or reclamation liability is released. Where these reclamation requirements differ from other applicable federal laws, rules, and regulations, those requirements supersede this policy. State and local statutes and regulations may also apply.

G.3.1 Manage all Waste Materials

- Segregate, treat, remove, and bio-remediate contaminated soil material in accordance with applicable laws, regulations, and policy.
- Bury only authorized waste materials on-site. Buried material must be covered with a minimum of 3 feet of suitable material or meet other program standards.
- Ensure all waste materials moved off-site are transported to an authorized disposal facility.

G.3.2 Ensure Subsurface Integrity and Eliminate Sources of Ground and Surface Water Contamination

- Properly plug all drill holes and other small openings.
- Stabilize, properly backfill, cap, and restrict from entry all open shafts, underground workings, and other openings.
- Control sources of contamination and implement best management practices (BMPs) to protect surface water and groundwater quality.

G.3.3 Ensure Surface Stability and Reestablish Slope Stability and Desired Topographic Diversity

- Evaluate erosion susceptibly prior to disturbance.
- Implement the appropriate erosion control and sediment containment measures and devices whenever and wherever needed (e.g., erosion control mats/blankets, mulch, water bars, silt fences, straw wattles, and surface roughening).
- Inspect and maintain all runoff and erosion control structures on a regular schedule and after major runoff events.
- Reconstruct the landscape to the approximate original contour; however, at the discretion of the BLM Authorized Officer, if the disturbed area has stabilized and if returning the original contour will cause additional disturbance, then recontouring may not be required.
- Maximize geomorphic stability and topographic diversity of the reclaimed topography.
- Eliminate high walls, cut slopes, and topographic depressions on-site, unless otherwise approved.
- Minimize sheet and small rill erosion on or next to the reclaimed area. There should be no evidence of mass wasting, head cutting, large rills or gullies, down cutting in drainages, or general slope instability on or next to the reclaimed area.

G.3.4 Reconstruct and Stabilize Water Courses and Drainage Features

- Reconstruct drainage basins and reclaim impoundments to maintain the drainage pattern, profile, and dimension to approximate the natural features found in nearby naturally functioning basins.
- Reconstruct and stabilize stream channels, drainages, and impoundments to exhibit similar hydrologic characteristics found in stable, naturally functioning systems.

G.3.5 Maintain the Biological, Chemical, and Physical Integrity of Topsoil

- Identify, delineate, and salvage topsoil based on a site-specific soil evaluation, including depth and chemical and physical properties.
- Protect all stored topsoil from erosion, degradation, noxious weed and invasive plant infestations, and contamination. Topsoil that is not re-spread within 30 days should be covered with a tackifier, mulch, or other approved cover. Piling subsurface soil on top of topsoil will be prohibited.
- Maintain stored topsoil viability by incorporating it into the disturbed landscape.
- Seed topsoil stored beyond one growing season with desired vegetation.
- Identify topsoil storage with appropriate signage.

G.3.6 Prepare Site for Revegetation

- Redistribute topsoil and subsoil in a manner similar to the original vertical profile.
- Reduce compaction to an appropriate depth (generally below the root zone) before redistributing topsoil to accommodate desired plant species.
- Provide suitable surface and subsurface physical, chemical, and biological properties to support the long-term establishment and viability of the desired plant community.
- Protect seed and seedling establishment (e.g., erosion control matting, mulching, hydro-seeding, surface roughening, and fencing).
- Defer grazing until reclamation goals and objectives are met.

G.3.7 Establish a Desired Self-perpetuating Native Plant Community

- Determine appropriate species composition and cover based on information from the appropriate ecological site descriptions (ESDs) and plant community descriptions.
- Establish species composition, diversity, structure, and total ground cover appropriate for the desired plant community, as described in the appropriate ESD.
- Enhance critical resource values (e.g., wildlife habitat), where appropriate, by augmenting plant community composition, diversity, and structure.
- Select genetically appropriate and locally adapted native plants based on the site characteristics and ecological setting that meet desired plant community objectives.
- Select nonnative plants only as an approved short-term and non-persistent alternative to native plants. Ensure the nonnatives will not hybridize, displace, impede, or pose long-term competition to the desired plant community outlined in the ESDs and that they are designed to aid in the reestablishment of native plant communities.
- Do not apply nitrogen fertilizer when annual bromes are found on-site or have the potential to invade the site from nearby infestations.

G.3.8 Reestablish a Complementary Visual Composition

- Ensure the reclaimed landscape features blend into the adjacent area and conform to the land use plan decisions.
- Ensure the landscape is reclaimed back to or better than the scenic quality level (visual resource inventory) predating disturbance.

G.3.9 Manage Invasive Plants

- Inventory for and treat noxious weeds before initiating surface-disturbing activities. Inventory for and consider treating nonnative and naturalized plants before initiating surface-disturbing activities.
- Develop an invasive plant management plan.
- Control invasive plants by using an integrated pest management approach.
- Monitor invasive plant treatments.

G.3.10 Develop and Implement a Reclamation Monitoring and Reporting Strategy

- Monitor for the success of the vegetation management objectives and reclamation goals.
- Conduct compliance and effectiveness monitoring in accordance with a BLM- or other surface management agency-approved monitoring protocol (e.g., Assessment, Inventory, and Monitoring Strategy).
- Evaluate monitoring data for compliance with and success of the outlined goals and objectives written in the reclamation plan.
- Document and report monitoring data and recommend revised reclamation strategies.
- Implement revised reclamation strategies, as needed.
- Repeat the process of monitoring, evaluating, documenting and reporting, and implementing until reclamation goals and vegetation management objectives are achieved.

G.4 SEEDING

Disturbed areas will be seeded, although most areas that have burned will not need seeding. As much seeding as possible will be conducted during the fall before the ground freezes. Occasional seeding may occur in the spring as long as favorable conditions exist. Seeding will not be allowed in frozen or saturated soil conditions, except for when it is approved by the BLM Authorized Officer, or winter seeding of sagebrush on snow. Reseeding will be required when a satisfactory stand is not obtained.

There should be no invasive or nonnative weed seeds in the mixture. Seed should be tested for purity and germination, and the viability testing should be done in accordance with Montana law. A tetrazolium test will be allowed for germination testing. Test results will be made available for BLM review, if requested. Commercial seed should be either state certified or tested weed-seed free. The seed mixture container should be tagged in accordance with state law, and it should be available for inspection. The amount of seed planted will be enough so that, on germination, the soil would be adequately covered.

Table G-1 lists generalized species that are commonly available from BLM seed networks. The species listed are not all inclusive because some sites may warrant other species and are subject to availability. Approved species will be used on all BLM-administered surface land and on private surface unless the landowner requests otherwise. Using species that are already present in an area increases the probability that the area will be revegetated successfully. Soil sampling may also be necessary to ensure that the species in the seed mix will establish on the site.

After the vegetation survey and soil sampling have been completed, a mix should be developed using species such as those listed in **Table G-1**; further refinements based on surrounding native vegetation, ecological site descriptions, or other sources are encouraged. No monocultures (pure stand) will be allowed. The mixture should be diverse enough to show a variety of native desirable plants and community structure on germination. The percentage of each species in the mixture will determine the percentage of that species' pure-stand seeding rate used. Forbs and shrubs should be included in the seed mixtures; however, they should not be included when herbicides are used to control invasive weeds. Cover or nurse crops may be used in certain situations and where warranted.

Table G-1
Lewistown Field Office Reclamation Seeding Mixtures

Vegetation Type	Species	Scientific Name	Mountain Mix	Prairie Mix	Breaks/ Badlands Mix	Local Occurrence
Shrubs	Big sagebrush, Wyoming	*Artemisia tridentata wyomingensis*	No	Yes	Yes	No
	Big sagebrush, mountain	*Artemisia tridentata vaseyana*	Yes	No	Yes	No
	Big sagebrush, basin	*Aremisia tridentata tridentate*	No	No	No	Yes
	Bitterbrush, antelope	*Purshia tridentate*	No	No	No	Yes
	Black sagebrush	*Artemisia nova*	No	No	No	Yes
	Fourwing saltbush	*Atriplex canescens*	No	Yes	Yes	No
	Gardners saltbush	*Atriplex gardneri*	No	Yes	Yes	No
	Rubber rabbitbrush	*Ericameria nauseosa*	No	Yes	Yes	No
	Shadscale	*Atriplex confertifolia*	No	No	Yes	No
	Spiny hopsage	*Grayia spinose*	No	No	No	Yes
	Winterfat	*Krascheninnikovia lanata*	No	Yes	Yes	No
Forbs	Arrowleaf balsamroot	*Balsamorhiza sagittata*	Yes	No	No	No
	Globemallow, scarlet	*Sphaeralcea coccinea*	Yes	Yes	Yes	No
	Lewis flax	*Linum lewisii*	No	Yes	Yes	No
	Longleaf phlox	*Phlox longifolia*	Yes	Yes	Yes	No
	Mules ears	*Wyethia amplexicaulis*	Yes	No	No	No
	Penstemon, blue	*Penstemon cyaneus*	Yes	No	No	No
	Penstemon, narrow leaf	*P. angustifolius*	No	Yes	Yes	No
	Penstemon, sand (sharpleaf)	*P. accuminatus*	No	Yes	No	No
	Slender white prairieclover - Antelope (MT)	*Dalea candida*	No	Yes	Yes	No
	Prairie coneflower	*Ratibida* spp. *columnifera*	Yes	Yes	Yes	No
	Silky lupine	*Lupinus sericeus*	Yes	Yes	No	No
	Silvery lupine	*L. argenteus*	Yes	Yes	No	No

Vegetation Type	Species	Scientific Name	Mountain Mix	Prairie Mix	Breaks/ Badlands Mix	Local Occurrence
Forbs *(continued)*	Western yarrow	*Achillea millefolium* var. *occidentalis*	Yes	Yes	Yes	No
	Yellow beeplant	*Cleome lutea*	Yes	Yes	No	No
	Rocky Mountain beeplant	*C. serrulata*	Yes	Yes	No	No
Grasses	Alkali sacaton	*Sporobolus airoides*	Yes	Yes	Yes	Salt, alkaline, clay, riparian
	Basin wildrye	*Leymus cinereus*	Yes	Yes	Yes	Riparian, valley bottoms
	Big bluegrass	*Poa secunda* ssp. *ampla*	No	Yes	Yes	No
	Blue wildrye	*Elymus glaucus*	Yes	No	No	Moist and deeper forest soils
	Bluebunch wheatgrass	*Pseudoroegneria spicata*	Yes	Yes	No	No
	Bottlebrush squirreltail	*Elymus elymoides* ssp. *Elymoides*	No	Yes	Yes	Minor component of variable soils
	Canby's bluegrass, Canbar	*Poa secunda canbyi*	No	Yes	Yes	No
	Green needlegrass	*Stipa viridula*	No	Yes	No	No
	Idaho fescue	*Festuca idahoensis*	Yes	No	No	No
	Indian ricegrass	*Acnatherum hymenoides*	No	Yes	Yes	No
	Letterman needlegrass	*A. lettermanii*	Yes	No	No	No
	Mountain brome	*Bromus marginatus*	Yes	No	No	No
	Prairie junegrass	*Koeleria macrantha*	Yes	Yes	Yes	No
	Sand dropseed	*Sporobolus cryptandrus*	No	Yes	Yes	Loamy to sandy open sites
	Sandberg's bluegrass	*Poa secunda* ssp. *secunda*	No	Yes	Yes	No
	Sideoats grama grass	*Bouteloua curtipendula*	No	Yes	Yes	No
	Six weeks fescue	*Vulpia octoflora*	No	Yes	Yes	No
	Slender wheatgrass	*Elymus trachycaulus*	Yes	Yes	Yes	No
	Thickspike wheatgrass	*E. lanceolatus*	No	Yes	Yes	No
	Streambank wheatgrass	*E.s lanceolatus*	No	Yes	Yes	Moist, riparian zones
	Western wheatgrass	*Pascopyrum smithii*	No	Yes	Yes	Uplands and drier streamside zones
	Tufted hairgrass	*Deschampsia caespitosa*	Yes	Yes	Yes	Riparian

Appendix H

Draft Air Resource Management Plan: Adaptive Management Strategy for Oil and Gas Resources

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TABLE OF CONTENTS

Section Page

APPENDIX H. DRAFT AIR RESOURCE MANAGEMENT PLAN: ADAPTIVE MANAGEMENT STRATEGY FOR OIL AND GAS RESOURCES H-1

H.1 Introduction H-1
  H.1.1 Purpose of the Air Resource Management Plan H-1
  H.1.2 Revision of the Air Resource Management Plan H-2
  H.1.3 Current Air Quality H-2
  H.1.4 Background of the Air Quality Technical Workgroup and the Memorandum of Understanding Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process H-3
  H.1.5 MDEQ Air Quality Management and BLM Mitigation Measures H-4
H.2 Oil and Gas Activity Assessment H-7
H.3 Ambient Air Quality Monitoring Support H-7
H.4 Air Quality and Air Quality Related Value Assessment H-8
  H.4.1 Annual National Ambient Air Quality Standards and Montana Ambient Air Quality Standards Assessment H-8
  H.4.2 Ozone Assessment H-8
  H.4.3 AQRV Assessment H-9
H.5 Photochemical Grid Modeling (PGM) H-10
  H.5.1 Photochemical Grid Modeling Details and Results H-10
  H.5.2 Modeling after Air Resource Management Plan Photochemical Grid Modeling Completion H-11
H.6 Mitigation H-12
  H.6.1 Initial Mitigation Actions H-12
  H.6.2 Monitoring-Based Enhanced Mitigation H-13
  H.6.3 Modeling-Based Enhanced Mitigation H-14
H.7 References H-14

TABLES

Page

H-1 Ambient Concentration Data for Pollutants Monitored in the Planning Area (2012–2014) H-3
H-2 Ambient Air Quality Standards for Pollutants Monitored in the Planning Area H-5
H-3 8-Hour Rolling Monitored O_3 Values for Ozone Season (June through September) H-9

ACRONYMS AND ABBREVIATIONS

ACRONYMS AND ABBREVIATIONS	Full Phrase
$\mu g/m^3$	micrograms per cubic meter
AQRV	air quality related value
AQTW	Air Quality Technical Workgroup
BACT	best available control technology
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
CAA	Clean Air Act
CO	carbon monoxide
DOI	US Department of the Interior
EPA	United States Environmental Protection Agency
FLPMA	Federal Land Policy and Management Act
Forest Service	United States Forest Service
LFO	Lewistown Field Office
MAAQS	Montana Ambient Air Quality Standards
MAQP	Montana Air Quality Permits
MDEQ	Montana Department of Environmental Quality
MOU	memorandum of understanding
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NPS	National Park Service
NSR	new source review
O_3	ozone
PGM	photochemical grid modeling
PM_{10}	particulate matter with a diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with a diameter less than or equal to 2.5 microns
ppb	parts per billion
ppm	parts per million
RMP	resource management plan
ROD	record of decision
SO_2	sulfur dioxide
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
VOC	volatile organic compound

Appendix H. Draft Air Resource Management Plan: Adaptive Management Strategy for Oil and Gas Resources

H.1 INTRODUCTION

H.1.1 Purpose of the Air Resource Management Plan

The air resource adaptive management strategy that would be used to assess future air quality and air quality related values (AQRVs) is described in the US Department of the Interior (DOI), Bureau of Land Management (BLM) Lewistown Field Office Air Resource Management Plan: Adaptive Management Strategy for Oil and Gas Resources Air Resource Management Plan for oil and gas activities. The Air Resource Management Plan also identifies mitigation measures to address potential unacceptable effects of future oil and gas development.

The adaptive management strategy focuses on oil and gas activity because aggregated emissions from multiple small sources at well sites can cause air quality and AQRV effects under certain circumstances. The BLM prepared the oil and gas adaptive management strategy in collaboration with or with the review of the United States Environmental Protection Agency (EPA) and two other federal land management agencies under the Memorandum of Understanding Among the US Department of Agriculture, US Department of the Interior, and US Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process (USDA, USDI, and EPA 2011). This agreement is described in more detail in **Section H.4**, Air Quality and Air Quality Related Value Assessment.

The Air Resource Management Plan includes both near-term and long-term actions. In the near-term, the Air Resource Management Plan proposed initial actions to maintain good air quality until regional modeling was completed to further assess potential effects on air quality and AQRVs. The long-range regional model was completed in 2016 and the results are summarized in Section H.5. In the long term, the Air Resource Management Plan provides ongoing management strategies to assess and adapt to new air quality and AQRV ambient monitoring and modeling data during the life of the Lewistown Field Office resource management plan (RMP).

The Air Resource Management Plan includes a multifaceted approach, involving the following activities:

- Oil and gas activity assessment
- Ambient air quality monitoring support
- Air quality and AQRV assessment
- Air quality and AQRV modeling
- Initial and enhanced mitigation

Pollutant emissions addressed by the Air Resource Management Plan are the following criteria air pollutants:

- Nitrogen dioxide (NO_2)
- Ozone (O_3)
- Particulate matter with a diameter less than or equal to 10 microns (PM_{10})
- Particulate matter with a diameter less than or equal to 2.5 microns ($PM_{2.5}$)

Three other criteria pollutants carbon monoxide (CO), lead (Pb) and sulfur dioxide (SO_2) would not be released in quantities that would adversely affect the ambient air quality in the LFO planning area. Emissions of CO and Pb emissions are not of concern in the LFO planning area. Pb is not emitted in oil and gas operation in measurable quantities. Additionally, the diesel and gas used in equipment and vehicles is unleaded. CO is not a pollutant of concern in rural areas with low population and low traffic volume.

The sulfur content of oil and gas in the LFO management area is very low and SO_2 release would not be significant. Additionally, the sulfur content of diesel gas used in mobile sources and construction equipment is low and regulated by EPA at the bulk supplier level.

The Air Resource Management Plan also addresses modeling and mitigation for the following AQRVs:

- Deposition of sulfur and nitrogen
- Lake acid neutralizing capacity
- Visibility

The adaptive management strategy for oil and gas resources provides the flexibility to respond to changing conditions that could not have been predicted during Air Resource Management Plan development. The strategy allows for the use of new technology and methods that may minimize or reduce effects.

H.1.2 Revision of the Air Resource Management Plan

This Air Resource Management Plan may be modified as necessary to comply with laws, regulations, and policies and to address new information and changing circumstances. Changes to the goals or objectives set forth in the LFO RMP would require maintaining or amending the Air Resource Management Plan; conversely, changes to implementation, including modifying this Air Resource Management Plan, may be made without maintaining or amending the RMP.

H.1.3 Current Air Quality

The air quality in the LFO planning area is good as shown by ambient monitoring results from the Lewiston monitoring site. **Table H-1**, Ambient Concentration Data for Pollutants Monitored in the Planning Area (2012–2014). All areas within the LFO comply with the National Ambient Air Quality Standards (NAAQS) and the Montana Ambient Air Quality Standards (MAAQS).

For all criteria pollutants except ozone, ambient monitoring data available from August 2012 through December 31, 2014, indicate that concentrations at the Lewistown monitor are less than 64 percent of the NAAQS. **Table H-1** provides ambient concentration data for each pollutant monitored at the site. NAAQS set forth allowable concentrations in terms of parts per million (ppm) or parts per billion (ppb) for gaseous pollutants, while particulate pollutant concentrations are provided in micrograms per cubic meter ($\mu g/m^3$). Air pollutant data collected by MDEQ's ambient air monitoring program and the MDEQ

Table H-1
Ambient Concentration Data for Pollutants Monitored in the Planning Area (2012–2014)

Pollutant	Average Period	Metric	Form	NAAQS	NAAQS Units	Monitored Concentration[1]	Percentage of NAAQS
NO_2	1 hour	98th Percentile	3-year average	100	Ppb	14	14
O_3	8 hour	4th maximum	3-year average	0.070	Ppm	0.048	69[2]
$PM_{2.5}$	24 hour	98th Percentile	3-year average	35	μg/m^3	10	29
	Annual	Mean	3-year average	12.0	μg/m^3	3.3	28
PM_{10}	24 hour	Not to be exceeded more than once per year	3-year average	150	μg/m^3	No exceedances	Not applicable

Source: MDEQ 2015

Data exclude exceptional events.

[1] Based on monitoring data from the Lewistown monitor (AQS No. 30-027-0006). The monitor became operational in August 2012; therefore, 3-year averaged concentrations reflect a partial year for 2012.

[2] The O_3 8-hour standard at the time this table was produced was 0.075, and measured O_3 8-hour average is 64 percent of the NAAQS. In 2015, EPA revised the 8-hour O_3 standard to a more protective 0.070 ppm.

annual air monitoring plans for the years 2015-2019 demonstrate that the ambient air quality in the LFO planning area continues to comply with the NAAQS and MAAQS (MDEQ 2019).

H.1.4 Background of the Air Quality Technical Workgroup and the Memorandum of Understanding Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process

The Air Quality Technical Workgroup (AQTW) includes representatives from the following agencies: the BLM, EPA, United States Department of Agriculture (USDA), United States Forest Service (Forest Service), United States Fish and Wildlife Service (USFWS), and the National Park Service (NPS). Each of these agencies is a party to the memorandum of understanding (MOU; USDA et al. 2011). The agreement was designed to "... facilitate the completion of NEPA [National Environmental Policy Act] environmental analyses for Federal land use planning and oil and gas development decisions" (USDA et al. 2011, p. 1). Additional entities, such as the Montana Department of Environmental Quality (MDEQ) and tribal entities, may also participate in the AQTW.

The MOU describes the collaborative procedures that the AQTW agencies use to analyze potential air quality and AQRV effects. The agencies also work together to identify potential mitigation measures that may be needed to reduce effects on air quality and AQRVs. The lead agency (the BLM, in this case), in collaboration with the other agencies, has the responsibility to identify reasonable mitigation and control measures and design features to address adverse effects on air quality. Mitigation measures may also address effects on AQRVs at Class I areas and at Class II areas of interest[1] that the BLM, Forest Service,

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[1] Class I federal lands include areas such as national parks, national wilderness areas, and national monuments. These areas are granted special air quality protections under Section 162(a) of the federal Clean Air Act. Class II lands are all non-Class I areas.

USFWS, and NPS have identified. The AQTW provided input to this Air Resource Management Plan and will continue to collaborate on future air modeling associated with BLM activities.

The provisions of the MOU continue to apply to future oil and gas activities in the planning area. In some cases, air quality and AQRV modeling performed under this Air Resource Management Plan may be sufficient to address modeling needs for future oil and gas projects that would otherwise require additional modeling under the MOU. Additional modeling and AQRV assessment may be required when oil and gas activities are proposed and permitted for specific projects.

H.1.5 MDEQ Air Quality Management and BLM Mitigation Measures

The MDEQ has the primary authority to protect air quality in Montana except in Native American tribal areas managed by the EPA or individual tribes. The BLM also plays a role in protecting air resources under the Federal Land Policy and Management Act (FLPMA) and NEPA. Successful air quality management of BLM-authorized oil and gas activities depends on a close working relationship between the MDEQ and the BLM. The two agencies have worked together to improve air quality monitoring and will continue to share data, air modeling, and identify emission reduction measures to maintain good air quality. Indeed, BLM has funded two monitoring sites at Lewistown and Malta to monitor ambient air.

The BLM's air resource analysis during the RMPA and NEPA process is for future activities and thus, forward looking. This is due to the nature of NEPA analyses for land use planning, and because air resource effects are analyzed for future activities that may or may not occur.

H.1.5.1 MDEQ Air Quality Programs

The MDEQ is charged with protecting a clean and healthy environment as guaranteed to citizens by Montana State Constitution. MDEQ's ultimate goal is to protect public health and to maintain Montana's high quality of life for current and future generations. The MDEQ has implemented state ambient air quality standards for additional air pollutants and has established more stringent standards for some criteria air pollutants. The NAAQS and MAAQS are listed in **Table H-2**, Ambient Air Quality Standards for Pollutants Monitored in the Planning Area.

The MDEQ has State Implementation Plan-approved new source review (NSR) permitting programs, which include prevention of significant deterioration, nonattainment area, and minor source programs. The MDEQ's prevention of significant deterioration and nonattainment area permitting programs impose controls on major stationary sources in order to control emissions of regulated pollutants. Emission controls are typically required through the application of best available control technology (BACT) or lowest achievable emission rate, depending on the applicable NSR permitting program.

In addition, the MDEQ implements a minor source NSR permitting program (e.g., minor source Montana Air Quality Permits [MAQP] and registrations). The MDEQ's minor source NSR program requires operators of sources with a potential to emit greater than 25 tons per year of any regulated air pollutant to apply for a permit to construct; alternatively, the operators must register with the MDEQ under the Administrative Rules of Montana.

To ensure compliance with the NAAQS, MDEQ's minor NSR program contains regulatory requirements that track activity and require the application of best available control technology. Additionally, the

Table H-2
Ambient Air Quality Standards for Pollutants Monitored in the Planning Area

Pollutant	**Averaging Period**	**Federal NAAQS[a]**			**MAAQS[b]**
		Concentration	**Standard Type**	**Form of NAAQS Primary Standard**	**Concentration**
NO$_2$	1 hour	100 ppb	Primary	3-year average of the 98th percentile concentrations	0.30 ppm
	Annual	53 ppb	Primary, secondary	Annual mean	0.05 ppm[f]
Ozone	1 hour	0.10 ppm	—	—	0.12 ppm[g]
	8 hour	0.070 ppm	Primary, secondary	3-year average of the fourth daily maximum 8-hour average	—
PM$_{2.5}$	24 hour	35 µg/m^3	Primary, secondary[c]	3-year average of the maximum	—
	Annual	12.0 µg/m^3	Primary	Annual mean	—
	Annual	15.0 µg/m^3	Secondary	Annual mean	—
PM$_{10}$	24 hour	150 µg/m^3	Primary, secondary	Not to be exceeded more than one per year, on average, over 3 years	—
	Annual	Revoked[d]	—	—	50 µg/m^3 [e]

[a] NAAQS are codified in Title 40 of the Code of Federal Regulations (CFR), Part 50.

[b] Montana AAQS are codified in Title 17, Chapter 8, Subchapter 2, of the Ambient Air Quality in the Administrative Rules of Montana.

[c] The EPA proposed a new secondary standard for PM$_{2.5}$ visibility of 28 or 30 deciviews (equivalent to 24 or 19 kilometers [15 or 12 miles] standard visual range).

[d] The annual PM$_{10}$ NAAQS was revoked October 17, 2006.

[e] Based on annual second maximum.

[f] Not to be exceeded in the averaging period specified.

[g] State violation when exceeded more than once during any 12 consecutive months.

Administrative Rules of Montana require reasonable precautions to limit fugitive particulate emissions from all activities in Montana, including permitted and registered facilities and operations that do not require a permit or registration.

The MDEQ's NSR program requires equipment and operational emission controls necessary to attain Montana's NAAQS and MAAQS, while allowing flexibility in the implementation of Montana's air quality programs.

H.1.5.2 MDEQ Oil and Gas Emission Control Requirements

The MDEQ minor source permitting and registration program for oil and gas facilities includes a robust set of emission controls. Any facility that produces and processes oil and gas in the Lewistown planning area is subject to the rules and regulations of the MDEQ air program and required to obtain appropriate permits to operate. MDEQ rules require oil or gas well facilities to control emissions from the time the well is completed until the source is registered or permitted. Facility operators who choose to register must meet the emission control requirements contained in Administrative Rules of Montana 17.8.17. If source operators cannot meet these requirements, they must apply for an MAQP, which requires a case-by-case BACT analysis. This may include design, equipment, work practice, or operational standards in place of or in combination with an emission limitation.

The following measures to limit emissions are examples of MDEQ emission control requirements for oil and gas facilities (defined as those with a potential to emit more than 25 tons per year of any airborne pollutant):

- Each piece of oil or gas well facility equipment containing volatile organic compound (VOC) vapors (as defined in the permitting or registration regulations), with a potential to emit 15 tons per year or more, must be routed to a gas pipeline or to air pollution control equipment with 95 percent or greater control efficiency (registered facilities). This requirement applies to the following equipment:
  - Oil and gas wellhead production equipment, including wellhead assemblies, amine units, prime mover engines, phase separators, heater treatment units, dehydrator units, storage tanks, and connector tubing
  - Transport vehicle loading operations
- Hydrocarbon liquids must be loaded into transport vehicles using submerged fill technology.
- Stationary internal combustion engines greater than 85 brake horsepower must be equipped with nonselective catalytic reduction (for rich burn engines) or oxidation catalytic reduction (for lean burn engines) or equivalent emission reduction technologies.
- Piping components containing VOCs must be inspected for leaks each month. The first attempt to repair any leaking VOC equipment must occur within 5 days, and the repair must be completed no later than 15 days after the leak is initially detected, unless facility shutdown is required. Facility operators are required to maintain monthly leak inspection and repair records.

Although MDEQ emissions control requirements do not mention greenhouse gases, the VOC emission control measures would also reduce methane emissions, while the engine emission controls would reduce nitrous oxide emissions. The MDEQ oil and gas emission control requirements have successfully protected air quality throughout the planning area, as demonstrated by ambient air quality monitoring data that indicate good air quality in oil and gas activity areas.

H.1.5.3 BLM Air Resource Management and MDEQ Coordination

The BLM's authority to address air resources derives primarily from Federal Land Policy and Management Act of 1976 As Amended (FLPMA) and the National Environmental Policy Act (NEPA). Under FLPMA, the BLM must "provide for compliance with applicable pollution control laws, including State and Federal air, water, noise, or other pollution standards or implementation plans" in the development and revision of land use plans (FLPMA Section 202 [c][8]). FLPMA also authorizes the BLM to manage public lands "in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values" (FLMPA Section 102[8]).

Under NEPA, the BLM ensures that information on the potential environmental and human effect of federal actions is available to public officials and citizens before decisions are made and before actions are taken. Two of the purposes of NEPA are to "promote efforts which will prevent or eliminate damage to the environment and biosphere" and to promote human health and welfare. (NEPA, Section 2 42 USC §4321). NEPA requires that the BLM and other federal agencies prepare a detailed statement on the environmental impact of the proposed action for major federal actions expected to significantly affect the quality of the human environment (NEPA, Section 102 [c] 42 USC §4321).

The BLM's authority under the Clean Air Act (CAA) primarily derives from the requirement that BLM-authorized activities comply with the CAA. BLM-authorized activities may not violate the CAA or federal, state, local and tribal regulations and state implementation plans issued to implement the CAA. When air quality or AQRV modeling performed during NEPA analysis predicts potential violations of the CAA or unacceptable AQRV effects, the BLM evaluates the data and determines whether mitigation measures are needed. For example, the initial mitigation measure requiring drill rig engines to meet Tier 4 emission standards reduces NO_2 emissions. This measure was demonstrated via modeling to prevent NAAQS violations from multiple, large, drill rig engines that may operate on one well pad. The mitigation measure includes an exception that allows use of drill rig engines meeting Tier 1, 2, or 3 emission standards if future modeling or near-field monitoring demonstrates compliance with the NAAQS.

When determining whether mitigation measures are needed, the BLM reviews current and proposed federal, state, and local regulations to determine if mitigation will occur due to other agency actions. If the BLM determines that additional mitigation is needed while implementing this Air Resource Management Plan, it will work closely with the MDEQ to coordinate future mitigation measures for BLM-authorized activities.

H.2 OIL AND GAS ACTIVITY ASSESSMENT

Under this Air Resource Management Plan, the BLM would track the number and locations of new oil and gas wells drilled on federal mineral estate and the number of new and abandoned producing wells on federal mineral estate. These numbers would be compared to any reasonably foreseeable developments in the planning area and to the level of oil and gas development identified in the preferred alternative.

In addition, the BLM would estimate oil and gas emissions from federal mineral estate every 3 years for oil and gas wells drilled and producing after the record of decision (ROD) is signed. Emission estimates would be based on well types, well numbers, and knowledge of typical equipment and operations. Methods used to estimate emissions are expected to improve over time as better data become available. The emission estimates will also account for implemented mitigation measures and for new emission control regulations as they become effective.

Each 3-year oil and gas emission inventory would be compared with emission estimates for the reasonably foreseeable development and the preferred alternative. The BLM would collect additional data related to oil and gas equipment and operations to improve emissions inventory quality. One area identified for improvement involves acquiring better data on oil and gas equipment used in the planning area. In order to improve fugitive dust emission estimates, the number, type, and length of vehicle trips in high-activity areas would be assessed. Each 3-year oil and gas emission inventory would be compared with emissions estimates for the preferred alternative.

H.3 AMBIENT AIR QUALITY MONITORING SUPPORT

The MDEQ has primary responsibility for siting and operating ambient air quality monitors in Montana and for reporting monitoring data to the EPA and to the public. "The Purpose of Montana's ambient air monitoring network is to monitor, assess and provide information on statewide air quality conditions and trends as specified by the Montana and Federal Clean Air Acts" (MDEQ 2019). The Air Quality Monitoring Program works in conjunction with local air pollution agencies and some industries, measuring air quality throughout Montana. This data provides the factual basis for regulatory decisions as well as provides air quality information to our local counterparts and the public." As described in its annual State of Montana

Air Quality Monitoring Network Plan (MDEQ 2019), the MDEQ identifies monitoring objectives for assessing ambient concentrations of criteria air pollutants and assessing compliance with the NAAQS and MAAQS. Historically, most MDEQ monitors were placed in cities to assess human health effects in the more densely populated areas of Montana.

The BLM provided funding to help purchase, install, and operate monitoring equipment in Lewistown and Malta. The Lewistown monitor (EPA AQS Number 30-027-0006) measures ambient concentrations ofNO_2, nitric oxide, nitrogen oxides, ozone, particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$), O_3, as well as meteorological parameters, such as temperature, wind speed, and wind direction. The monitor, which began operating in 2012, is located at a latitude of 47.048537 and longitude of -109.455315.

H.4 AIR QUALITY AND AIR QUALITY RELATED VALUE ASSESSMENT

The BLM would assess monitored air quality and AQRVs annually, using quality-assured data from the EPA, MDEQ, Forest Service, USFWS, NPS, and other sources. The purpose of the assessment is to assess trends in ambient air quality and AQRV and implement mitigation strategies to prevent air resource deterioration and violations.

H.4.1 Annual National Ambient Air Quality Standards and Montana Ambient Air Quality Standards Assessment

The BLM would review MDEQ air quality monitoring data and AQRVs annually and compile this information in a Montana BLM Air Resource Report. This report would be available on the internet and draft reports would be shared with the MDEQ and AQTW for comments prior to finalizing the annual air resource report. The purposes of the annual assessment are to compare monitored data to NAAQS and MAAQS and to identify seasonal and long-term trends in air pollutant concentrations and AQRVs. Federal rules implemented by the EPA require each state to establish a network of monitors to measure concentrations of criteria pollutants in ambient air based upon population, regional air quality, and regulatory concerns. The MDEQ develops the Air Quality Monitoring Network Plan and submits it on an annual basis in accordance with the requirements contained in Title 40 of the Code of Federal Regulations (CFR) Part 58.10.

NAAQS and MAAQS are provided in **Table H-2** for pollutants monitored in the LFO planning area. Montana standards are shown only if they are more stringent than the NAAQS. As of December 31, 2015, the criteria pollutants CO, Pb, and SO_2 are not monitored in the planning area; moreover, with regard to pollutants regulated exclusively under the MAAQS, hydrogen sulfide and settleable particulate matter (PM) are not monitored in the planning area. Hydrogen sulfide is not monitored because ambient concentrations are believed to be very low due to low sulfur levels in gas produced in the area. Settleable particulate is not monitored in the area because the MDEQ prioritizes monitoring of pollutants subject to NAAQS, and settleable particulate is a Montana state ambient air quality standard.

Results of the annual NAAQS assessment would be used to determine if additional mitigation measures are needed to reduce impacts to ambient air quality from oil and gas operations.

H.4.2 Ozone Assessment

The MDEQ has endeavored, in several cases with collaborative funding from the Bureau of Land Management (BLM), to define background levels of O_3 across Montana and to assess impacts from petroleum exploration within the eastern portion of the state. The MDEQ conducts O_3 monitoring in

Broadus (30-075-0001), Birney (30-087- 0001), Sidney (30-083-0002), Malta (30-071-0010), Lewistown (30-027-0006), and at the National Core Monitoring Site (NCore) (30-049-0004).

In the LFO planning area, the MDEQ collects and publishes ambient concentrations of ozone data from the Lewistown monitor. The MDEQ calculates NAAQS design values and publishes these numbers in the annual Network Monitoring Plan (See 2016, 2017, 2018 and 2019 MDEQ Network Monitoring Plans). A design value is the monitored reading used by EPA to determine an area's air quality status for a criteria pollutant. For O_3, the EPA defines the Design Value as the 4th highest daily maximum 8-hour average concentration, averaged over a 3-year period. The current USEPA standard for Ozone is 0.070 parts per million, or ppm. Any design value above this level is considered non-attainment of the standard. The Lewistown Design Values calculated by the MDEQ are from EPA's AQS database and the list below shows that the highest O_3 design value is just below 85% of the 8-hour O_3 NAAQS during the ozone season in the summer. The O_3 design value has increased since 2013, but the highest design value is still below 85% of the 8-hour NAAQS. The BLM will continue to monitor this trend both in the Lewistown monitoring site and across the state of Montana.

Table H-3
8-Hour Rolling Monitored O_3 Values for Ozone Season (June through September)

Averaging Years	NAAQS Design Values (ppm)
2016-2018	0.059
2015-2017	0.057
2014-2016	0.055
2013-2015	0.055
2012-2014	0.048

The MDEQ has observed little variability in the monitored ambient O_3 concentrations across the state. The MDEQ operates seven monitoring stations located at or near Birney, Broadus, Lewistown, Malta, Missoula, NCore, and Sidney-201 to ambient O_3. Two of the seven monitoring sites (including the 2005–2007 Billings site) are located in the two largest-population communities in Montana, two are in small towns, one is in a rural oilfield, two are in very rural settings with minimal population and no industry, and one is in a pristine background location adjacent to a federal wilderness area. According to the MDEQ, it appears that the O_3 monitored in the ambient air across Montana is indicative of general background concentrations produced principally by natural sources or transported in from sources outside the state, with little anthropogenic source input from within Montana (MDEQ 2019).

H.4.3 AQRV Assessment

Federal land managers track the status, condition, and trends of AQRVs for Class I and for some Class II areas of interest under their jurisdictions. Consequently, the BLM would obtain visibility, sulfur, and nitrogen deposition and lake acid neutralizing capacity data from the Forest Service, USFWS, and NPS. The BLM would include the AQRV data in its annual Montana Air Resource Report.

The annual Montana BLM Air Resource Report would help ascertain trends in ambient air quality and AQRV. However, ambient air quality and AQRV trends in the area may not necessarily be related to BLM authorized oil and gas development. AQRV effects are often associated with pollutants that can be transported long distances from many different types of sources. For example, visibility degradation in eastern Montana primarily results from large stationary sources, such as electric-generating units and cement kilns, as described in the Montana Regional Haze Federal Implementation Plan (EPA 2012).

H.5 PHOTOCHEMICAL GRID MODELING (PGM)

The EPA regulatory preferred air dispersion model AERMOD is a near-field model that performs well to a range of 50-km but not capable of modeling long-range effects or O_3 which is formed by complex interactions in the atmosphere. The BLM Montana/Dakotas (BLM-MT/DK) state office Photochemical Grid Model (PGM) modeling study was a three-year work effort (2013-2016) to assess the future year oil and gas air quality (AQ) and Air Quality Related Value (AQRV) impacts in the Montana/Dakotas region. The United States Forest Service (USFS) requested an examination of the potential impacts related to oil and gas activities in the Little Missouri National Grassland (LMNG) that lies within the BLM North Dakota Field Office (NDFO) planning area that was added to the study.

The PGM analysis was conducted because it can predict ozone and regional haze effects by cumulatively accounting for pollutants and precursors that are emitted in the Montana and Dakotas field office management areas, and model pollutants from far-field that are transported many hundreds of miles from areas outside the LFO and other field offices. During the course of the BLM-MT/DK – USFS/LMNG PGM modeling study, numerous reports were prepared. The two reports that describe the modeling effort and the results are: "*Bureau of Land Management Montana/Dakotas State Office PGM Modeling Study Air Resource Impact Assessment Final Report*" (Ramboll Environ & Kleinfelder, 2016a) and the "*Bureau of Land Management Montana/Dakotas State Office PGM Modeling Study Air Resource Technical Support Document (ARTSD) Final Report"* (Ramboll Environ & Kleinfelder, 2016b). During this comprehensive modeling effort, the USFS also provided funding to obtain a separate AQ and AQRV assessment due to their O&G activities within the Little Missouri National Grasslands (LMNG) in North Dakota.

H.5.1 Photochemical Grid Modeling Details and Results

The BLM performed PGM to assess regional air quality and AQRV impacts due to proposed BLM activities in multiple BLM field offices in Montana, North Dakota, and South Dakota. In addition to addressing oil and gas development in the LFO, the modeling supports the effect analyses for oil and gas activities in the RMP revisions and EISs for the Billings Field Office, Miles City Field Office, HiLine District, and South Dakota Field Office.

The Comprehensive Air-quality Model with extensions (CAMx) Photochemical Grid Model (PGM) was used to estimate the air quality (AQ) and air quality related value (AQRV) impacts due to new oil and gas (O&G) development within the three-state Montana/Dakotas region. CAMx was first applied for the October 2012 – September 2013 (2012/2013) base year using 2012/2013 emissions and meteorological conditions and the modeling results were compared against concurrent observations in a model performance evaluation. In order to use a full 12 months of ambient monitoring data from the Lewistown monitor, the baseline year used for PGM is a 12-month period from October 2012 through September 2013. Emissions were then projected to the 2032 future year and CAMx was applied using the 2012/2013 meteorological conditions with the 2032 emissions. The future year AQ impacts due to emissions from new O&G development and all other sources were compared against the NAAQS and state standards. The impacts of the new O&G emissions on visibility and acid (sulfur and nitrogen) deposition were assessed at Class I and Class II areas of interest. The AQ impacts due to new oil and gas emissions were also compared against PSD increments at Class I/II areas.

Throughout the PGM data collection and modeling process, the BLM collaborated with the MDEQ, AQTW, and other agencies that requested to be involved in the PGM effort. These collaborators provided technical review and comment on the modeling protocol, meteorological modeling performance, and base year modeling performance. The MDEQ, AQTW, and other agencies also reviewed and commented on the future year modeling results and draft air resource technical support document. The PGM reports and appendices are posted on the BLM Montana e-planning website.

The PGM report's summary of the AQ and AQRV impacts of the new O&G emissions due to BLM actions and all other sources within the Montana/Dakotas region includes the following conclusions:

- There were no estimated exceedances of the NAAQS or any state standards in the region in the current (2012/2013) or future (2032) year modeling.
- Emissions from O&G activity due to BLM actions were estimated to cause exceedances of the 0.5 and 1.0 change in deciview (Δdv) visibility thresholds at the Fort Peck and Medicine Lake Class I areas. When examining the visibility impacts of the cumulative O&G emission scenarios, there were also exceedances of the 0.5 and 1.0 Δdv thresholds at the Theodore Roosevelt and Lostwood Class I areas in additional to Fort Peck and Medicine Lake.
- Nitrogen deposition due to new O&G from BLM actions was below Critical Load levels but above the Deposition Analysis Threshold (DAT) at Fort Peck, Medicine Lake and Theodore Roosevelt Class I areas. Cumulative nitrogen deposition levels due to O&G activity was also below Critical Load levels but above the DAT at Fort Peck, Medicine Lake, Lostwood and Theodore Roosevelt Class I areas.
- Sulfur deposition due to BLM O&G actions was below Critical Loads but above the DAT at the Theodore Roosevelt Class I area with cumulative O&G sulfur deposition impacts also below Critical Loads but above the DAT at the Fort Peck, Medicine Lake, Lostwood and Theodore Roosevelt Class I areas. O&G due to BLM actions and cumulative O&G impacts on Acid Neutralizing Capacity (ANC) did not exceed any thresholds of concern at any sensitive lake in the region.
- BLM O&G actions are not estimated to cause any exceedances of PSD increments except for 24-hour PM2.5 PSD increment at the Fort Peck Class I areas. Similarly, the cumulative O&G scenarios are not estimated to cause any exceedances of PSD increments except for 24-hour PM2.5 at the Fort Peck, Medicine Lake and Lostwood Class I areas.

PSD increment analysis included in the PGM study is usually conducted when a major air pollution facility is permitted by a regulatory agency. At the RMP level, details of equipment location, stack parameters, exact equipment model and facility emissions are not known accurately. A refined analysis is conducted during the air quality permitting process in Air Quality Control Regions where PSD increment consumption triggered or when a major air pollution source is permitted. To address concerns with visibility and deposition effects observed in the PGM study, the BLM funded and is currently monitoring AQRVs at Medicine Lake Class I area through an agreement with Colorado State University.

H.5.2 Modeling after Air Resource Management Plan Photochemical Grid Modeling Completion

To the extent that future emission increases are within the levels modeled with PGM or other modeling and are proximate to modeled emission locations, far-field air quality and AQRV effect analysis for future environmental impact statements may incorporate by reference PGM and other modeling results. The BLM and the AQTW would determine whether previous modeling is sufficient future proposed activities to. This air quality management approach is consistent with the MOU among the US Department of Agriculture, US Department of the Interior, and US Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process (USDA et al. 2011).

If additional modeling is performed after the 2016 Montana/Dakotas PGM, the BLM would assess impacts to air quality and AQRV and, if necessary, would identify additional mitigation measures.

H.6 MITIGATION

Air quality and AQRV effect mitigation would involve:

- Initial measures that become effective when the ROD is signed
- Enhanced measures that may be identified, based on future ambient monitoring data or modeling results

H.6.1 Initial Mitigation Actions

The air quality mitigation measures described below would be applied when the ROD is issued, through leasing documents and project-specific NEPA documents. To the extent practical, emission reductions associated with these mitigation measures have been included in the LFO emission inventory.

- Design and construct roads and well pads to reduce the amount of fugitive dust generated by traffic or other sources. During construction and except when the ground is wet or frozen, apply water, dust-suppression chemicals, or gravel or use other control methods to achieve 50 percent fugitive dust control efficiency.
- Except when the ground is wet or frozen, use water or other BLM-approved dust suppression during drilling, completion, and well workover operations for dust abatement on access roads, as needed, to achieve 50 percent fugitive dust control efficiency.
- Except when ground is wet or frozen, use water or other BLM-approved dust suppression in high traffic areas during production operations for dust abatement, as needed, to achieve 50 percent fugitive dust control efficiency. Operators would work with local government agencies to improve dust suppression on roads.
- For oil and gas project plans of development, oil and gas operators would establish speed limits for project-required unpaved roads in and next to the project area; oil and gas operations employees would comply with these speed limits.
- For oil and gas project plans of development and when feasible, oil and gas operators would be encouraged to reduce surface disturbance, vehicle traffic, and fugitive dust emissions by consolidating facilities, such as using multi-well pads and storage vessels.
- Diesel drill rig engines greater than 200 horsepower would meet Tier 4 emission standards for non-road diesel engines. Alternatively, oil and gas operators may use drill rig engines that exceed Tier 4 emission standards, if modeling or monitoring at the project level or at a programmatic level demonstrates compliance with the NAAQS and protection of AQRVs.
- Non-road diesel engines would be required to use ultra-low sulfur diesel fuel (15 parts per million weight), as required by 40 CFR, Subpart 80.610(e)(3)(iii).

H.6.2 Monitoring-Based Enhanced Mitigation

Enhanced mitigation would be considered and implemented if ambient monitoring data at the Lewistown monitoring site indicate that measured pollutant concentrations are approaching or threatening the NAAQS or MAAQS, and BLM's oil and gas leasing may contribute to the air quality deterioration. The BLM would communicate with MDEQ regarding the data and potential sources of air pollutant emissions in the LFO planning area. BLM would review monitored data and design values provided by MDEQ in their annual networking plan.

If ambient air quality assessment indicates that an MDEQ calculated design value is greater than 85 percent of a NAAQS and if BLM's activities and oil and gas operations are determined to substantially contribute to the monitored pollutant concentration, then one or more enhanced mitigation measures addressing that pollutant or pollutant precursor would be evaluated. During this process, the BLM would confer with the MDEQ, the interagency working group, and EPA. The geographic extent of the mitigation measures would be limited to the area determined to contribute substantially to air pollutant concentrations above 85 percent of the NAAQS. Potential enhanced mitigation measures are those measures listed below, as well as additional measures that may be identified in the future. Preference would be given to mitigation methods that the MDEQ might require as new regulations or air quality permitting provisions. Selected mitigation measures would be implemented within one year after the BLM decision to apply additional mitigation.

Potential enhanced mitigation measures are those listed below and are based on current information concerning potential emission reduction technologies. Additional measures or equivalent methods or emission restrictions may be identified in the future.

Potential mitigation measures include:

- Drilling or blow down activity restrictions based on meteorological conditions
- Construction restrictions based on meteorological conditions
- Centralization of gathering facilities
- Electric drill rigs
- Field electrification for compressors or pumpjack engines
- Plunger lift systems with smart automation
- Oil tank load out vapor recovery
- VOC controls on tanks with a potential to emit less than 5 tons per year
- Selective catalytic reduction on stationary engines not associated with drill rigs
- Reduced emission completions beyond those required by EPA regulations if determined to be technically and economically feasible
- Well pad density limitations
- A reduced total number of drill rigs operating simultaneously
- Seasonal reductions or cessations of drilling during specified periods
- Use of only lower-emitting drill and completion rig engines during specified periods
- Use of natural-gas-fired drill and completion rig engines
- Replacement of internal combustion engines with gas turbines for natural gas compression

- Use of a monthly, infrared leak detection program to reduce VOCs
- Tank load out vapor recovery
- Enhanced VOC emission controls with 95 percent control efficiency on additional production equipment having a potential to emit greater than 5 tons per year
- Enhanced direct inspection and maintenance program

H.6.3 Modeling-Based Enhanced Mitigation

Future modeling will assess air quality and AQRV effects from future BLM-authorized oil and gas activity and may include regional PGM and project-specific modeling. Enhanced mitigation would be considered and implemented if ambient air quality and AQRV models indicate potential future impact to NAAQS or MAAQS or effects above specific levels of concern for AQRVs in Class I or Class II areas of interest as identified on a case-by-case basis by MDEQ or a federal land management or tribal agency.

If BLM-authorized oil and gas activity is predicted to cause or contribute to criteria pollutant ambient concentrations approaching or exceeding the NAAQS, or levels of concern for visibility, acid deposition, or lake acidification, the BLM would facilitate an interagency process to develop a comprehensive strategy to manage air quality impact from future oil and gas development within the region.

The local, state, federal, and tribal agencies involved in the regulation of air quality and the authorization of oil and gas development would evaluate air quality modeling results during facility permitting process and would identify potential air quality concerns and implement necessary reductions in air emissions. During permitting and registration, agencies including MDEQ would use their regulatory authorities to implement enhanced emission control strategies, operating limitations, and equipment emission limits or would pace development as necessary to ensure continued compliance with applicable ambient air quality standards. The emission control measures would include measures listed in **Section H.6.1**, Initial Mitigation Actions, other future mitigation measures identified through the BLM's adaptive management strategy, or reasonable mitigation measures suggested by the MDEQ or AQTW. If necessary, the BLM would implement mitigation measures within one year of obtaining final modeling results for mitigation measures that conform to currently implemented land use planning decisions and constraints.

The strategies in this Air Resource Management Plan provide steps to ensure that the monitored ambient air quality complies with the NAAQS and MAAQS, and the AQRV levels do not reach levels of significance during BLM's activities including oil and gas drilling and operation.

H.7 REFERENCES

Ramboll Environ & Kleinfelder. 2016a. Bureau of Land Management Montana/Dakotas State Office PGM Modeling Study Air Resource Impact Assessment Final Report.

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USDA, USDI, and EPA (United States Department of Agriculture, United States Department of the Interior, and United States Environmental Protection Agency). 2011. Memorandum of Understanding Among the US Department of Agriculture, US Department of the Interior, and US Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process. June 23, 2011. Internet website: http://www.epa.gov/oecaerth/resources/policies/nepa/air-quality-analyses-mou-2011.pdf.

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Appendix I

Fire and Emergency Stabilization and Rehabilitation

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TABLE OF CONTENTS

Section Page

APPENDIX I. FIRE AND EMERGENCY STABILIZATION AND REHABILITATION I-1

I.1 Fire I-1
I.2 Emergency Stabilization and Rehabilitation I-2
  I.2.1 Introduction I-2
  I.2.2 Emergency Stabilization and Rehabilitation Protocols I-2

TABLES

Page

I-1 Fire Management Category Descriptions I-1
I-2 ES&R Program Time Frames, Tasks, and Responsibilities I-6

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Appendix I. Fire and Emergency Stabilization and Rehabilitation

I.1 FIRE

Table I-1, Fire Management Category Descriptions, compares fire management categories. It is adapted from the Montana/Dakotas Fire/Fuels Plan Environmental Assessment/Plan Amendment (2003). It can be found on the internet at http://www.blm.gov/mt/st/en/prog/fireaviation/fire_management_plans/state_plan.html.

Table I-1
Fire Management Category Descriptions

Category A: Fire is not desired at all	***Category B:*** Unplanned fire is likely to cause negative effects	***Category C:*** Fire is desired to manage ecosystems, but current vegetative condition creates constraints on use	***Category D:*** Fire is desired; no constraints on its use
Fire Management Activities: • Mitigation and suppression required • Fire should not be used to manage fuels	***Fire Management Activities:*** • Suppression required • Fire and non-fire fuels treatments may be used	***Fire Management Activities:*** • Suppression may be required • Fire and non-fire fuels treatments may be used	***Fire Management Activities:*** • Suppression may not be necessary • Both fire and non-fire treatments could be used
Rationale for Categorization: • Direct threats to life or property • Ecosystems not fire dependent • Long fire return intervals	***Rationale for Categorization:*** • Unplanned ignitions would have negative effects on ecosystems unless mitigated	***Rationale for Categorization:*** • Significant ecological, social, or political constraints	***Rationale for Categorization:*** • Few ecological, social, or political constraints • Less need for fuels treatment
Fire Suppression Considerations: • Emphasis on prevention, detection, and rapid suppression response and techniques	***Fire Suppression Considerations:*** • Emphasis on prevention, education, and suppression	***Fire Suppression/Use Considerations:*** • Emphasis on reducing unwanted ignitions, resource threats, and fuels accumulations	***Fire Suppression/Use Considerations:*** • Emphasis on using planned and unplanned wildfire to achieve resource objectives
Multiple Fire Priority[1]: Highest	***Multiple Fire Priority[1]:*** High	***Multiple Fire Priority[1]:*** Medium	***Multiple Fire Priority[1]:*** Lowest

Source: Adapted from the Montana/Dakotas Fire/Fuels Plan Environmental Assessment/Plan Amendment (http://www.blm.gov/mt/st/en/prog/fireaviation/fire_management_plans/state_plan.html)

[1] If multiple fires were burning, Categories A and B would generally receive priority for fire management resources.

I.2 EMERGENCY STABILIZATION AND REHABILITATION

I.2.1 Introduction

Emergency stabilization plans and rehabilitation (ES&R) plans are prepared after a wildfire. Their purposes are to minimize threats to life and property and to stabilize and prevent unacceptable degradation to natural and cultural resources resulting from the effects of the fire, in a cost-effective and expeditious manner. Not all fires need emergency stabilization and rehabilitation.

The United States Department of the Interior, Bureau of Land Management's (BLM's) Burned Area Emergency Stabilization and Rehabilitation Handbook (H-1742-1[1]) provides detailed information specific to BLM policies, standards, and procedures used in the burned area ES&R programs. Handbook H-1742-1 is intended to be the primary guidance to the BLM's ES&R activities. These activities and treatment undertaken in the Lewistown Field Office will follow the handbook's guidance. ES&R activities and treatments in wilderness study areas will comply with policy in the Management of BLM Wilderness Study Areas (BLM Manual 6330[2]). As the departmental manuals are updated and revised, conformance to the new direction will supersede the criteria included herein.

Emergency stabilization is defined as "Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life and property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources. Emergency Stabilization actions must be taken within one year following containment of a wildfire" (620 DM 3.3E).

Rehabilitation is defined as "Efforts undertaken within 3 years of containment of a wildfire to repair or improve fire-damaged lands unlikely to recover naturally to management approved conditions, or to repair or replace minor facilities damaged by fire" (620 DM 3.3M).

Emergency stabilization and rehabilitation funds are not used for rehabilitating wildfire suppression; this includes rehabilitating fire lines, helispots, and fire camp. Costs for rehabilitating wildfire suppression will be funded by the wildfire project code.

I.2.2 Emergency Stabilization and Rehabilitation Protocols

Emergency stabilization protection priorities are first, human life and safety and second, property and unique biological resources (designated critical habitat for federally and-state listed, proposed, or candidate threatened and endangered species) and significant heritage sites (620 DM 3.7A). Burned area rehabilitation protection priorities are first, to repair or improve lands damaged directly by a wildfire and second, to rehabilitate or establish healthy, stable ecosystems in the burned area (620 DM 3.8A).

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[1] BLM. Handbook H-1742-1—Burned Area Emergency Stabilization and Rehabilitation Handbook. Rel. 1-1702. Washington, DC. February 12, 2007. Internet website: https://www.blm.gov/sites/blm.gov/files/uploads/Media_Library_BLM_Policy_Handbook_h1742-1.pdf.

[2] BLM. Manual 6330—Management of Wilderness Study Areas. Rel. 6-134. Washington, DC. July 13, 2012. Internet website: https://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.31915.File.dat/6330.pdf.

Emergency Stabilization

The objective of emergency stabilization is "To determine the need for and to prescribe and implement emergency treatments to minimize threats to life or property or to stabilize and prevent unacceptable degradation to natural and cultural resources resulting from the effects of a fire" (620 DM 3.4A).

Emergency stabilization plans are prepared by an interdisciplinary team immediately following a wildfire. The plan preparers specify emergency treatments and activities to be carried out within 1 year following containment of the wildfire. Generally, activities are prescribed only within the perimeter of a burned area.

Allowable emergency stabilization actions are limited to the items below, grouped by issue topic.

Human Life and Safety

- Replacing or repairing minor facilities essential to public health and safety when no other protection options are available
- Removing hazard trees along access routes and around areas with high public use

Soil and Water Stabilization

- Placing structures to slow soil and water movement
- Stabilizing soil to prevent loss of degradation or productivity
- Increasing road drainage frequency and capacity to handle additional post-fire runoff
- Installing protective fences or barriers to protect treated or recovering areas

Designated Critical Habitat for Federally or State-Listed, Proposed, or Candidate Species

- Conducting assessments of critical habitat in those areas affected by emergency stabilization treatments
- Seeding or planting to prevent permanent impairment of designated critical habitat for federally and state-listed, proposed, or candidate threatened and endangered species

Critical Heritage Resources

- Assessing significant heritage sites in those areas affected by emergency stabilization treatments
- Stabilizing critical heritage resources
- Patrolling, camouflaging, or burying significant heritage sites to prevent looting

Greater Sage-Grouse Priority Areas and Protection Priority Areas

- Prioritizing native seed allocation for use in greater sage-grouse habitat in years when preferred native seed is in short supply. Where the probability of success or native seed availability is low, nonnative seeds may be used, as long as they meet greater sage-grouse habitat conservation objectives. Reestablishing appropriate sagebrush species/subspecies and important understory plants, relative to site potential, will be the highest priority for rehabilitation.
- Designing post-ES&R management to ensure long-term persistence of seeded or pre-burn native plants
- Considering potential changes in climate when proposing post-fire seedings using native plants

- Considering seed collections from the warmer component within a species' current range for selecting native seed
- Developing an appropriate seed mix for the location, based on current climatic data as well as soils/ecological site descriptions

Invasive Plants

- Seeding to prevent the establishment of invasive plants and treating invasive plants directly. Such actions will be specified in the emergency stabilization plan under the following circumstances:
    - Only when immediate action is required and when standard treatments are used that have been validated by monitoring data from previous projects
    - When there is documented research establishing the effectiveness of such actions
- Using integrated pest management techniques to minimize the establishment of nonnative, invasive species within the burned area
- Using emergency stabilization treatments to stabilize the invasive species when there is an existing approved management plan that addresses nonnative, invasive species

Monitoring

- Monitoring treatments and activities for up to 3 years from the date of fire containment

Burned Area Rehabilitation

The objectives of rehabilitation are as follows:

- To evaluate actual and potential long-term post-fire impacts on critical cultural and natural resources
- To identify those areas unlikely to recover naturally from severe wildfire damage
- To develop and implement cost-effective plans to emulate historic or pre-fire ecosystem structure, function, diversity, and dynamics consistent with approved land management plans, or, if that is infeasible, then to restore or establish a healthy, stable ecosystem in which native species are well represented
- To repair or replace minor facilities damaged by wildfire (620 DM 3.4B)

Rehabilitation plans are prepared separately by an interdisciplinary team; these plans are independent of an emergency stabilization plan. The rehabilitation plan specifies nonemergency treatments and activities to be carried out within 3 years following containment of a wildfire. Generally, rehabilitation is prescribed only within the perimeter of a burned area.

Allowable rehabilitation actions are limited to the items below, grouped by issue topic.

Lands Unlikely to Recover Naturally

- Repairing or improving lands unlikely to recover naturally from wildfire damage by emulating historic or pre-fire ecosystem structure, function, diversity, and dynamics, consistent with existing land management plans

Weed Treatments

- Removing invasive species chemically, manually, and mechanically
- Planting native and nonnative species to restore or establish a healthy, stable ecosystem even if this ecosystem cannot fully emulate historic or pre-fire conditions

Tree Planting

- Planting trees to reestablish burned habitat and native tree species lost in fire and to prevent establishment of invasive plants

Repair/Replace Fire Damage to Minor Facilities

- Repairing or replacing fire damage to minor operating facilities (e.g., fences, campgrounds, interpretive signs and exhibits, shade shelters, and wildlife guzzlers). Rehabilitation may not include planning or replacing major infrastructure, such as visitor centers, residential structures, administration offices, work centers, and similar facilities. Rehabilitation does not include constructing new facilities that did not exist before the fire, except for temporary and minor facilities necessary to implement burned area rehabilitation.

Monitoring

- Monitoring treatments and activities for up to 3 years from date of fire containment

After 3 years, the long-term monitoring of an ES&R project will be officially transferred to a designated resource program. Long-term responsibility for tracking the ES&R investment should be identified early in the ES&R planning process through an interdisciplinary team. Those in charge of the resource program are encouraged to conduct an evaluation at the 5-year interval. The purpose is to identify management changes needed to ensure project success in reaching the intended objectives (Washington Office-Instruction Memorandum [IM]-2010-195, 9/3/2010).

Policies on time frames for ES&R planning, funding, and implementation are very specific. ES&R treatments must be implemented, to the extent possible, before additional damage occurs to the burned area, immediately downslope of the burned area, or before undesirable vegetation becomes established. Treatments must be implemented at a time that will ensure a high or maximum probability of success. The ES&R program time frames in relation to tasks and responsibilities are shown in **Table I-2**, ES&R Program Time Frames, Tasks, and Responsibilities.

Due to the broad spectrum of situations encountered in emergency stabilization and rehabilitation, several options of possible treatments must be considered, either separately or in combination. The ES&R handbook list several treatments under the treatment guidance section.

Table I-2
ES&R Program Time Frames, Tasks, and Responsibilities

Event	Time Frames	Task
Wildfire occurs	Immediately	Manager assigns a resource advisor (RA). While the fire is still burning, the RA, in consultation with resource specialists and the appropriate manager, decides if ES&R is warranted based on values at risk/resources at risk. If the RA decides that ES&R is warranted, he or she notifies the North Central Montana District Fire Management (NCMD-FM) or District Office ES&R lead before the fire is contained. The NCMD-FM or District Office ES&R lead then notifies the State Office ES&R program lead of the scope of the fire and the anticipated fire containment date.
Initial ES plan needed. Submit Form 1310-20 plus supplemental attachments (LF2200000 [2822] and LF3200000 [2881]); indicate functional areas on the form	Within 7 days of fire containment	Concurrently with state ES&R program lead, national ES&R program lead, and national operations center.
Prepare and submit a complete emergency stabilization plan	Within 21 days of fire containment	If less than $100,000, submit to the state ES&R program lead; if $100,000 or greater, submit to the state ES&R program lead (for review) and concurrently to the national ES&R program lead.
Receive approval or disapproval of emergency stabilization plan	Within 6 working days of receipt by Approval Office	Requesting office receives memorandum approving funding or the need for revision on a plan-by-plan basis. The state director has funding approval authority for plans less than $100,000. The BLM Budget Officer, after concurrence with Assistant Director WO-200, has funding approval authority for plans $100,000 or greater.
Receive notification of emergency stabilization funding approval	Immediately	The local fire office enters project data into the National Fire Plan Operations and Reporting System.
Prepare and submit the necessary burned area rehabilitation (BAR) plan	Timely; ideally soon after submitting emergency stabilization plan but no later than September 5 annually	To state ES&R program lead and national ES&R program lead. Field Office; local fire office enters project data into the National Fire Plan Operations and Reporting System.
Receive approval/disapproval of the BAR plan funding	Before October 31 annually	Funding for the BAR plans is approved via the annual work plan.
Accomplishment report and funding request form for 2881 funds for next fiscal year	Early September	To state ES&R program lead for review and submission to national ES&R program lead for concurrence. Funding for years 2 and 3 is approved via the annual work plan.
Close-out report	Early September of year 3	To state ES&R program lead for review and submission to the national ES&R program lead.

Appendix J

Impoundments

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Appendix J. Impoundments

Management actions in this appendix are applicable to the 19 constructed, surface water impoundments that have previously been identified as sport fishery reservoirs, recreation sites, and/or hazard-size class. These features may or may not support riparian-wetland habitat based on water level fluctuation, but all are mapped as freshwater pond or lake wetland types.

Alternative A	**Alternative B**	**Alternatives C1 and C2**	**Alternative D**
Action: No similar action	**Action:** The primary factors considered for the 19 constructed, surface water impoundments that have previously been identified as sport fishery reservoirs, recreation sites, and/or hazard-size class include valid existing rights, hazard-class size, legal public access, sport fisheries habitat, livestock/wildlife water, and functionality. Primary factors (e.g., access and the potential to support fish) may be subject to changing conditions during the life of this plan; therefore, this action would be considered an implementation-level decision. Management actions would comply with state water rights law. Those features with valid existing rights (e.g., privately-owned water rights and ROW authorization) would be maintained at the discretion/expense of the right holder. Five sites, totaling 147 acres of freshwater pond, would be maintained on BLM-administered land. These include: • Box Elder (Vogel)* Reservoir • Little Bear Reservoir • Holland Reservoir*	**Action:** The primary factors considered for the 19 constructed, surface water impoundments that have previously been identified as sport fishery reservoirs, recreation sites, and/or hazard-size class include valid existing rights, hazard-class size, legal public access, sport fisheries habitat, livestock/wildlife water, and functionality. Using these criteria, the following reservoirs would currently be managed as described below. Primary factors (e.g., access and the potential to support fish) may be subject to changing conditions during the life of this plan; therefore, this action would be considered an implementation-level decision. Management actions would comply with state water rights law. Those features with valid existing rights (e.g., privately-owned water rights and ROW authorizations) would be maintained at the discretion/expense of the right holder at 3 sites, totaling 17 acres. These include: • Box Elder (Vogel)* Reservoir • Little Bear Reservoir	**Action:** The primary factors considered for the 19 constructed, surface water impoundments that have previously been identified as sport fishery reservoirs, recreation sites, and/or hazard-size class include valid existing rights, hazard-class size, legal public access, sport fisheries habitat, livestock/wildlife water, and functionality. Using these criteria, the following reservoirs would currently be managed as described below. Primary factors (e.g., access and the potential to support fish) may be subject to changing conditions during the life of this plan; therefore, this action would be considered an implementation-level decision. Management actions would comply with state water rights law. Those features with valid existing rights (e.g., privately-owned water rights and ROW authorizations) would be maintained at the discretion/expense of the right holder at 3 sites, totaling 17 acres. These include: • Box Elder (Vogel)* Reservoir • Little Bear Reservoir

Alternative A	**Alternative B**	**Alternatives C1 and C2**	**Alternative D**
Action: No similar action *(continued)*	- Whisker Reservoir* - Iverson Dam **The embankments for Box Elder, Holland, and Whisker Reservoirs are not on property administered by the BLM, but the water feature behind the embankment is on BLM-administered land.* A plan for decommissioning and developing alternative livestock/wildlife water (if necessary) would be developed for 14 sites, totaling 304 acres. These include: - Fritzner Reservoir - Crooked Creek Reservoir - Buffalo Wallow Reservoir - Drag Creek Reservoir - Dry Blood Reservoir - Jakes Reservoir - Mauland Reservoir - Payola Reservoir - South Fork Dry Blood Reservoir - Bubs Reservoir (Hedman Dam) - Wolf Coulee Reservoir #1 - Dry Wolf Reservoir - Duck Creek Reservoir - Zimmerman Dam	- Iverson Dam The BLM would support cooperative agreements with right holders to maintain 2 sites totaling 130 acres of freshwater pond. These include: - Holland Reservoir* - Whisker Reservoir* **The embankments for Box Elder, Holland, and Whisker Reservoirs are not on property administered by the BLM, but the water feature behind the embankment is on BLM-administered land.* The BLM would maintain 6 sites, totaling 167 acres of freshwater pond. These include: - Fritzner Reservoir - Drag Creek Reservoir - Dry Blood Reservoir - South Fork Dry Blood Reservoir - Payola Reservoir - Bubs Reservoir (Hedman Dam) A plan for decommissioning and developing alternative livestock/wildlife water (if and when necessary) would be developed for 8 sites, totaling 137 acres. These include: - Crooked Creek Reservoir - Buffalo Wallow Reservoir - Jakes Reservoir - Mauland Reservoir - Wolf Coulee Reservoir #1 - Dry Wolf Reservoir - Duck Creek Reservoir - Zimmerman Dam	- Iverson Dam The BLM would support cooperative agreements with right holders to maintain 2 sites totaling 130 acres of freshwater pond. These include: - Holland Reservoir* - Whisker Reservoir* **The embankments for Box Elder, Holland, and Whisker Reservoirs are not on property administered by the BLM, but the water feature behind the embankment is on BLM-administered land.* The BLM would maintain 6 sites, totaling 167 acres of freshwater pond. These include: - Fritzner Reservoir - Drag Creek Reservoir - Dry Blood Reservoir - South Fork Dry Blood Reservoir - Payola Reservoir - Bubs Reservoir (Hedman Dam) A plan for decommissioning and developing alternative livestock/wildlife water (if and when necessary) would be developed for 8 sites, totaling 137 acres. These include: - Crooked Creek Reservoir - Buffalo Wallow Reservoir - Jakes Reservoir - Mauland Reservoir - Wolf Coulee Reservoir #1 - Dry Wolf Reservoir - Duck Creek Reservoir - Zimmerman Dam

<table>
<tr><th>Alternative A</th><th>Alternative B</th><th>Alternatives C1 and C2</th><th>Alternative D</th></tr>
<tr><td>Action: No similar action</td><td colspan="3">Reservoir Ranking Criteria for the sport fisheries, recreation sites, and hazard class reservoirs**
1) Valid Existing Rights (e.g. rights-of-way, private water rights, etc.)
a) Are valid existing rights present on the feature?
i) Yes, feature maintained at discretion/expense of right holder.
a. If valid, existing right holder chooses not to maintain it, go to 2
ii) No
a. If hazard class go to 2.
b. If not hazard class, go to 3.
2) Hazard-class status reservoirs (applicable to hazard class dams only)
b) Does the feature support other values (e.g. fisheries, recreation, etc.)?
i) Yes, go to 3
ii) No, develop plan for decommissioning.
3) Legal Public Access Status
a. Does the feature have existing, legal, motorized access?
i. Yes, go to 4
ii. No, go to 3b.
b. Is an alternate route <u>possible</u>?
i. Yes, go to 4
ii. No, go to 3c.
c. Does the feature have existing, legal, overland, non-motorized access?
i. Yes, go to 4.
ii. No, is landowner interested in allowing public access?
1. Yes, go to 4.
2. No, go to 5.
4) Sport Fisheries Habitat
a. Could the feature support over-wintering fish population?
i. Yes, go to 6 (<i>functionality</i>).
ii. No, go to 4b.
b. Can it support a fishery with cooperators (put and take)?
i. Yes, go to 6 (<i>functionality</i>).
ii. No, go to 5.
5) Livestock/Wildlife Water
a. Are other existing or potential reliable alternate water resources available within 1.5 miles (e.g. pit dams, pipelines, tanks)?
i. Yes, develop plan for decommissioning.
ii. No, maintain feature.</td></tr>
</table>

<table>
<tr><th>Alternative A</th><th>Alternative B</th><th>Alternatives C1 and C2</th><th>Alternative D</th></tr>
<tr><td>Action: No similar action
<i>(continued)</i></td><td colspan="3">6) Functionality
a. Is there an embankment deficiency?
i. No, consider maintaining feature in site specific NEPA (consider public interest, lifespan, costs, other values).
ii. Yes, go to 6b.
b. Does the fishery warrant maintenance?
i. Yes, maintain feature.
ii. No, consider decommissioning.
* This flowchart documents the thought process to determine reservoir placement within the alternatives.
**Embankments on lands not administered by the BLM are: Holland, Whisker, and Box Elder/Vogel.</td></tr>
</table>

Appendix K

North Continental Divide Ecosystem Grizzly Bear Conservation Strategy

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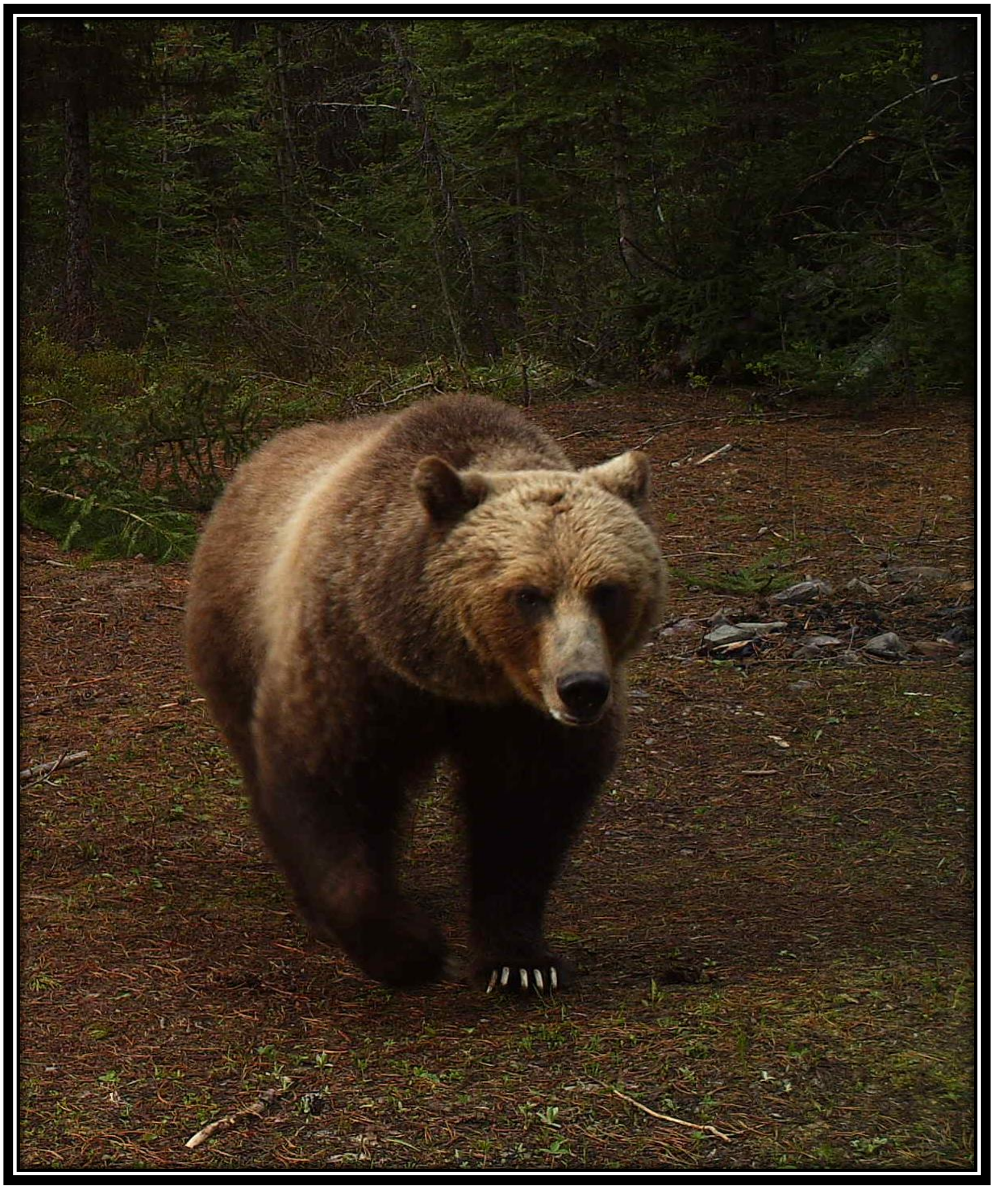
This file contains an executive summary of the North Continental Divide Ecosystem Grizzly Bear Conservation Strategy. Full text of the document is available via the Lewistown RMP/EIS ePlanning website (https://go.usa.gov/xUPsP).

Conservation Strategy for the Grizzly Bear in the Northern Continental Divide Ecosystem

June 2018



MEMORANDUM OF UNDERSTANDING

DETAILING AGENCY AGREEMENT TO IMPLEMENT THIS CONSERVATION STRATEGY

The agencies signing this Conservation Strategy agree to use their respective authorities to maintain and enhance the recovered status of the grizzly bear in the Northern Continental Divide Ecosystem (NCDE) by implementing the regulatory mechanisms, interagency cooperation, population and habitat management and monitoring, and other provisions of the Conservation Strategy as per the details and responsibilities described in this document. All signatories recognize that each has statutory responsibilities that cannot be delegated and that this agreement does not and is not considered to abrogate any of their statutory responsibilities. This agreement is subject to and is intended to be consistent with all appropriate Federal and State laws. Funding of this MOU is subject to approval and appropriations by State, Tribal, and Federal entities. All agencies will take appropriate steps within their obligatory authorities and identified roles to seek funding to implement this document. The adequacy of the regulatory mechanisms demonstrated by this Conservation Strategy are dependent upon funding being available to fully implement the management and monitoring actions detailed in this document. This Conservation Strategy would remain in effect beyond recovery, delisting, and the minimum post-delisting monitoring period as described in the U.S. Fish and Wildlife Service's Final Rule to address the need for long-term coordination among signatory agencies. Every five years, the NCDE Coordinating Committee will evaluate this Conservation Strategy and revise it as appropriate to ensure the conservation of grizzly bears in the NCDE.

Regional Forester Date
U.S. Forest Service, Northern Region

Director Date
Montana Fish, Wildlife & Parks

Regional Director Date
National Park Service, Intermountain Region

State Director Date
Bureau of Land Management, Montana

Director Date
Montana Department of Natural Resources and Conservation

State Director Date
USDA APHIS, Wildlife Services

Deputy Bureau Director – Field Operations Date
Bureau of Indian Affairs

Regional Director Date
U.S. Fish and Wildlife Service, Region 6

Tribal Council Chairman Date
Confederated Salish and Kootenai Tribes

Tribal Business Council Chairman Date
Blackfeet Nation

EXECUTIVE SUMMARY

Chapter 1 – Introduction and Background

The overarching goal of this Conservation Strategy, and the signatory agencies, is to maintain a recovered, genetically diverse grizzly bear population throughout the Demographic Monitoring Area (DMA: the Primary Conservation Area (PCA) and Zone 1) while maintaining demographic and genetic connections with Canadian populations and providing the opportunity for demographic and/or genetic connectivity with other ecosystems (Cabinet-Yaak, Bitterroot, Greater Yellowstone). This Conservation Strategy was developed by an interagency team of State, Tribal, and Federal managers and scientists to describe the coordinated management and monitoring efforts necessary to maintain a recovered grizzly bear population in the Northern Continental Divide Ecosystem (NCDE) and to document the commitment of these agencies to this shared goal. This Conservation Strategy provides a cohesive umbrella for all signatories to operate under and reference, but each signatory has their own legal process and authority to implement the Conservation Strategy. This Conservation Strategy would remain in effect beyond recovery, delisting, and the minimum five-year post-delisting monitoring period required by the Endangered Species Act (ESA). The agencies are committed to be responsive to the needs of the grizzly bear through adaptive management (see Glossary) actions based on the results of detailed annual population and habitat monitoring.

The purposes of this Conservation Strategy are to:

- Describe and summarize the coordinated strategies, standards, and guidelines developed for managing the grizzly bear population, human-grizzly bear conflicts (see Glossary), and grizzly bear habitat to ensure their continued conservation in the NCDE;
- Compile and reference the regulatory mechanisms, legal authorities, policies, management documents, and monitoring programs that will maintain the recovered grizzly bear population;
- Document the commitments agreed upon by the participating agencies.

Within the NCDE, the grizzly bear population and its habitat will be managed using an approach that identifies a PCA and three additional management zones (Zone 1, Zone 2, and Zone 3: see Figure 2). The PCA is the area currently known as the NCDE Grizzly Bear Recovery Zone. This is where the most conservative habitat protections would remain, with maintenance of habitat conditions that were compatible with the increasing grizzly bear population from 2004–2011. Grizzly bears are also expected to occupy habitat outside the PCA in Zones 1 and 2 where they may serve as a source population to other grizzly bear ecosystems in the lower-48 States. Habitat and population protections would vary by management objective in these Zones with more protections in areas identified as Demographic Connectivity Areas (DCAs, see Glossary). In contrast to Zones 1 and 2, Zone 3 does not provide habitat linking to other grizzly bear ecosystems. Grizzly bears currently occupy Zone 3 (adjacent to Zone 1), and their numbers are expected to increase, but this may be incompatible with human presence because these areas often lack forest cover, land ownership is mostly private, and agricultural uses predominate. In Zone 3, grizzly bear occupancy will not be actively discouraged and will be managed primarily though conflict response.

Relationship to Other Plans

Relationships with State, Federal, and Tribal plans are discussed throughout the Conservation Strategy. In the NCDE, land and resource management plans for National Forests (NF), National Parks, Bureau of Land Management (BLM), the Blackfeet Indian Reservation (BIR), the Flathead Indian Reservation (FIR), and Montana Department of Natural Resources and Conservation (DNRC) have incorporated, or will prior to any delisting rule, the habitat objectives and other relevant provisions of the Conservation Strategy. Montana Fish, Wildlife & Parks (MFWP) is considering an administrative rule making process to incorporate relevant provisions of the Conservation Strategy later in 2018.

Chapter 2 – Demographic Monitoring and Management

To maintain a healthy, recovered grizzly bear population in the NCDE, it is necessary to have adequate numbers of bears that are well distributed with a balance between reproduction and mortality. This section details the demographic monitoring protocols and management objectives developed to maintain and enhance a recovered grizzly bear population in the NCDE. These will be focused within the DMA (Figure 2). Because grizzly bears are a difficult species to monitor, multiple objectives and thresholds are identified to provide sufficient information upon which to base management decisions.

As described earlier in this summary, the goal of the Conservation Strategy is to maintain a recovered, genetically diverse grizzly bear population throughout the DMA while maintaining demographic and genetic connections with Canadian populations and providing the opportunity for demographic and/or genetic connectivity with other ecosystems. This will be achieved by the meeting the following objectives:

- Objective 1: Maintain a well-distributed grizzly bear population within the DMA;
- Objective 2: Manage independent female survival and independent male and female mortalities from all sources to support a 90% or greater estimated probability that the grizzly bear population within the DMA remains above 800 bears, considering the uncertainty associated with all of the demographic parameters; and

- Objective 3: Monitor demographic and genetic connectivity among populations.

Chapter 3 – Habitat Management and Monitoring

The goal of habitat management in this Conservation Strategy is to provide reasonable assurance that habitat on Federal, State, and Tribal lands will continue to be managed to levels that support a stable to increasing grizzly bear population in the NCDE. Therefore, the general approach is to maintain the habitat conditions that existed during the period when the NCDE grizzly bear population was stable to increasing. Habitat management objectives are specific to the PCA and Zones 1, 2, and 3 (Figure 2), each with varying levels of habitat protections depending on their relative importance to the NCDE grizzly bear population. Each zone is a mosaic of land ownerships, with different types of resource management that reflect the mandates and interests of each agency or Tribal government.

Based on the best available science, this Conservation Strategy focuses habitat management on the following key habitat features and human activities in the NCDE: (1) secure core and the density of open and total motorized routes; (2) developed recreation sites; (3) livestock allotments; (4) vegetation management; and (5) oil and gas and/or hardrock mining activities. These features were selected for consideration because of their potential to impact habitat availability and/or increase the risk of grizzly bear mortality within the NCDE. In addition, in order to manage mortality of grizzly bears at sustainable levels, anthropogenic food (see Glossary), garbage, and other attractants (see Glossary) associated with resource management activities that increase the risk of grizzly bear mortality will be managed. Requiring proper storage of food and attractants has been demonstrated to be an effective tool to promote public safety and to reduce grizzly bear mortality risk.

The PCA has the most rigorous habitat protections in order to achieve the goal of continual occupancy by a source population of grizzly bears. Habitat conditions that were compatible with an increasing population under baseline conditions will be maintained. Habitat management in the PCA will be focused on maintaining or improving upon baseline levels of secure core and motorized route density, developed recreation sites, and livestock allotments. Attractant storage rules will be in place on Federal, State and Tribal lands in the PCA.

As described in the Grizzly Bear Recovery Plan (USFWS 1993), Bear Management Units (BMUs (see Glossary)), and BMU subunits are used for habitat evaluation and population monitoring within the PCA (Figure 3). A BMU is an area large enough to meet the yearlong habitat needs of both male and female grizzly bears, while BMU subunits represent the approximate size of a female grizzly bear's annual home range. The NCDE Recovery Zone was divided into 23 BMUs and 126 BMU subunits. This Conservation Strategy will continue to use these BMUs and BMU subunits as a tool for managing and monitoring certain habitat conditions and management activities within the PCA.

Management Zone 1 surrounds the PCA. The PCA and Zone 1 together comprise the DMA, the area within which population data are collected and mortality limits apply. Here, habitat protections will focus on managing motorized route densities within levels specified in current Federal, State, and Tribal land use plans because these are known to have been compatible with a stable to increasing grizzly bear population. Attractant storage rules would be implemented on Federal, Tribal, and most State lands. On the northwest and southwest corners of Zone 1, there are two DCAs that are intended to support female occupancy and eventual dispersal to the Cabinet-Yaak (CYE) and Bitterroot (BE) ecosystems. In the Salish and Ninemile DCAs, habitat protections will focus on no net increase in motorized route miles or density and managing current roadless areas as stepping stones to other ecosystems.

Management Zone 2 will be managed to provide the opportunity for grizzly bears to move between the NCDE and adjacent ecosystems (e.g., the GYE). Habitat management direction compatible with the goal of providing for genetic connectivity will be maintained on Federal and State lands. Attractant storage rules would be implemented on most Federal and State lands.

Management Zone 3 consists of other areas within the NCDE. Efforts here will be focused on prevention and response to human-grizzly bear conflicts. There is no need for habitat protections specifically developed for grizzly bears on Federal and State lands in Zone 3 in order to support recovery of the NCDE population. The extent of Zone 3 will be determined in the USFWS' Final Rule delisting grizzly bears in the NCDE.

Chapter 4 – Conflict Prevention, Response, and Conflict Bear Management

The grizzly bear population in the NCDE has expanded its distribution while the number and distribution of people living and recreating in grizzly bear habitat have increased. For grizzly bear conservation to be successful, providing habitat on the landscape is not enough. For grizzly bears to survive, people must accept the grizzly bear as a cohabitant of the land. Tolerance can be maintained when the public has confidence that management agencies will respond quickly and appropriately to human-grizzly bear conflicts and when the public has the knowledge to understand and avoid human-grizzly bear conflicts. The objective of conflict management is to maximize human safety and minimize property losses while maintaining a viable population of grizzly bears (Dood et al. 2006). When human-grizzly bear conflicts are not adequately addressed, there are negative consequences for the individual bear and the people involved, and support for grizzly bear management and conservation is undermined.

The emphasis of grizzly bear conflict management will be quick response by management authorities, removal of the source of the conflict where possible, and the use of non-lethal solutions. Depending on the circumstances of the conflict, appropriate responses may include:

- Proactively removing or securing attractants
- Public education and outreach
- Discouraging the grizzly bear from visiting the site using non-lethal methods (e.g., aversive conditioning (see Glossary))
- Reactively or preemptively capturing and translocating a grizzly bear to a new area

- Removing the bear from the wild, including lethal control

The focus and intent of conflict grizzly bear management inside and outside the PCA will rely on strategies and actions to prevent human-grizzly bear conflicts. Securing potential attractants is the single most effective way to prevent bears from becoming habituated (see Glossary) or food conditioned (see Glossary), thereby limiting human-caused grizzly bear mortality, human-grizzly bear encounters, and other human-grizzly bear conflicts. Rules requiring attractants to be stored in a bear-resistant manner on most public lands will continue under this Conservation Strategy. The NCDE's existing Information & Education (I&E) subcommittee will continue to coordinate outreach efforts to ensure the consistency of messages. All grizzly bear conflicts, relocations, and removals will be documented and reported annually in the NCDE Annual Report.

Chapter 5 – Implementation and Evaluation

Upon implementation of this Conservation Strategy, the NCDE Coordinating Committee will replace the current NCDE Subcommittee, although its membership will remain largely the same. The Coordinating Committee will evaluate implementation of this Conservation Strategy, promote the exchange of data and information about the NCDE grizzly bear population among agencies and the public, and make recommendations to the management agencies regarding implementation of this Conservation Strategy. The Coordinating Committee will continue to communicate with the IGBC. The Coordinating Committee is not a decision-making body, although it may provide recommendations to member agencies from time to time. The Coordinating Committee does not supersede the authority of the management agencies beyond the specific actions agreed to as signatories to this Conservation Strategy.

Once adopted by the agencies, this Conservation Strategy's goals, objectives, and/or monitoring procedures may only be changed through a clear demonstration of need based on biological data, the best available science, and/or new techniques. Any such amendments will be subject to public review and would be guided by and consistent with the agreements reached in this Conservation Strategy and its overall goal to maintain a recovered grizzly bear population in the NCDE and conserve its habitat.

The Coordinating Committee will be supported and informed by the NCDE I&E Team and Monitoring Team. The I&E Team will be comprised of information/education specialists from the signatory agencies. The goal of this team will be to work with agencies, Tribes, elected officials, non-governmental organizations and the public to share knowledge and increase understanding of grizzly bears, their habitat, conflict prevention and management actions. The NCDE Monitoring Team will take the lead in preparing an annual monitoring report with staff support from the Coordinating Committee member agencies. Monitoring results and analysis will be provided to the Coordinating Committee and the public. If there are deviations from any of the population and/or habitat objectives and/or thresholds stipulated in this Conservation Strategy, a Management Review will be initiated. A Management Review examines management of habitat, populations, or efforts of participating agencies to complete their required monitoring. The NCDE Monitoring Team is not responsible for completing impact analyses for projects proposed by any agency; such analyses are the responsibility of the agency making the proposal. The Coordinating Committee will respond to the Monitoring Review with actions to address the deviations from the population or habitat standards. If desired population and habitat objectives specified in this Conservation Strategy are not being met, and cannot be met in the opinion of the Coordinating Committee, then the Coordinating Committee may request the USFWS conduct a status review to determine if protections under the ESA are warranted.

Chapter 6 – Regulatory and Conservation Framework

The management of grizzly bears and the habitats they require for survival are dependent upon the laws, regulations, agreements, and management plans of the State, Tribal, and Federal agencies in the NCDE. This chapter documents the regulatory mechanisms and conservation framework that would continue in the absence of ESA protections. These laws, regulations, and agreements provide the legal basis for coordinating management, controlling mortality, providing secure habitats, managing human-grizzly bear conflicts, regulating hunters and hunting seasons, limiting motorized access where necessary, controlling livestock allotments, regulating oil and gas development, mitigating large scale mining operations, maintaining education and outreach programs to prevent conflicts, monitoring populations and habitats, and requesting management and petitions for relisting when necessary.

Appendix L

Stipulations and Allocations Applicable to Fluid Minerals Leasing

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TABLE OF CONTENTS

Section Page

APPENDIX L. STIPULATIONS AND ALLOCATIONS APPLICABLE TO FLUID MINERALS LEASING L-1

- L.1 No Leasing Allocations L-1
- L.2 Description of Stipulations L-1
  - L.2.1 Standard Terms and Conditions for Fluid Minerals Leasing L-2
  - L.2.2 No Surface Occupancy L-2
  - L.2.3 Controlled Surface Use L-3
  - L.2.4 Timing Limitations L-3
  - L.2.5 Lease Notice L-3
  - L.2.6 Condition of Approval L-3
  - L.2.7 Project Mitigation and Monitoring L-3
- L.3 Exceptions, Modifications, and Waivers L-4
  - L.3.1 Standard Modification, Exception, and Waiver L-4

TABLES

Page

- L-1 No Surface Occupancy Stipulations for Fluid Minerals Leasing L-6
- L-2 Controlled Surface Use Stipulations for Fluid Minerals Leasing L-32
- L-3 Timing Limitation Stipulations Applicable to Fluid Minerals Leasing L-40
- L-4 Lease Notices Applicable to Fluid Minerals Leasing L-44

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Appendix L. Stipulations and Allocations Applicable to Fluid Minerals Leasing

This appendix lists by alternative the stipulations for fluid minerals leasing (e.g., oil, gas, and geothermal) referred to throughout the Lewistown Resource Management Plan (RMP) and Environmental Impact Statement (EIS). The stipulations would not apply to activities and uses where they are contrary to laws, regulations, or specific program guidance, including locatable minerals development under the 1872 mining law. While they are not stipulations, this appendix also presents descriptions of the no leasing (NL) allocations for fluid minerals presented in the alternatives.

L.1 NO LEASING ALLOCATIONS

NL State-designated Source Water Protection Areas

Closed to fluid mineral leasing and geophysical exploration in State-designated Source Water Protection Areas.

NL Cultural Resources (Alternative B)

Close to fluid mineral leasing and geophysical exploration NRHP-eligible and -listed historical properties and cultural sites allocated to conservation for future use, traditional use, and public use.

NL Cultural Resources (Alternative D)

Close NRHP-listed historical properties to fluid mineral leasing.

NL Egg Mountain

Close Egg Mountain to fluid mineral leasing and geophysical exploration.

NL Lands with Wilderness Characteristics

Close to fluid mineral leasing and geophysical exploration within areas that are managed to protect wilderness characteristics.

NL High Potential Route Segments

Close trail management corridors containing High Potential Route Segments and Sites to fluid mineral leasing.

L.2 DESCRIPTION OF STIPULATIONS

Table L-1, No Surface Occupancy Stipulations for Fluid Minerals Leasing, through **Table L-3**, Timing Limitation Stipulations Applicable to Fluid Minerals Leasing, provide details of the stipulations and restrictions by alternative. Three types of stipulations and restrictions could be applied to fluid minerals leases: no surface occupancy (NSO), controlled surface use (CSU), and timing limitation (TL).

NSO, CSU, and TL are stipulation decisions and apply to fluid minerals leasing and development of fluid mineral estate underlying US Department of the Interior, Bureau of Land Management (BLM)-administered lands, privately owned lands, and state-owned lands, but not underlying National Forest System lands or national wildlife refuges. To lease minerals beneath surface lands administered by the US Department of Agriculture, Forest Service (Forest Service), the BLM must receive consent to lease from the Forest Service. Also, the BLM must incorporate any accompanying stipulations required by forest land use plans or forest-wide programmatic leasing analyses.

Federal fluid mineral estate acres are greater than BLM-administered surface acres. In the planning area, the BLM administers 651,200 acres of surface estate and 1,196,800 acres of federal mineral estate. The latter includes minerals administered by the BLM overlain by BLM-administered and private and state-owned land. It also includes federal mineral estate overlain by lands administered by other federal agencies for which the BLM has decision-making authority for minerals. Acreages are calculated on current information and may be adjusted in the future through plan maintenance as conditions warrant.

Lease stipulations and lease notices would be applied, as applicable, to all new leases and to expired leases that are reissued. On existing leases, the BLM would develop conditions of approval for applications for permits to drill to achieve resource objectives of lease stipulations contained in the Lewistown RMP. New development on existing leases would have to comply with current management direction. This direction is consistent with Interior Board of Land Appeals decisions.[1] These decisions give the BLM discretion to modify surface operations to add specific mitigation measures, supported by site-specific National Environmental Policy Act (NEPA) analysis undertaken during the development phase on existing leases. Any additional mitigation measures would need to be justifiable, would still need to provide for lease development, and would need to be incorporated in a site-specific document.

The BLM developed the stipulations identified in Alternative A, Current Management, in the 1983 Headwaters Resource Area RMP (HRMP) and the 1992 Judith-Valley-Phillips (JVP) RMP. There is an existing protest resolution decision affecting federal mineral estate in the LFO that does not allow oil and gas leasing of nominated parcels that would require a special stipulation to protect important wildlife values. Existing fluid minerals leases that expire can be re-nominated for leasing, but they would be deferred. New leasing of areas with important wildlife values cannot occur until the BLM completes this EIS and issues a Record of Decision.

L.2.1 Standard Terms and Conditions for Fluid Minerals Leasing

Oil and gas development is subject to standard terms and conditions of the lease. Onshore Oil and Gas Order No. 1[2] gives the BLM the ability to relocate proposed operations up to 656 feet (200 meters) and to prohibit surface-disturbing operations for a period not to exceed 60 days.

L.2.2 No Surface Occupancy

Use or occupancy of the land surface for fluid minerals exploration or development and all activities associated with fluid minerals leasing are prohibited to protect identified resource values. Examples of these activities are truck-mounted drilling, stationary drill rigs in unison, geophysical exploration equipment off designated routes, and construction of wells or pads (refer to **Table L-1**).

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[1] Yates Petroleum Corp., 176 Interior Board of Land Appeals 144 (2008) and William P. Maycock, 180 Interior Board of Land Appeals 1 (2010).

[2] Onshore Oil and Gas Operations; Federal and Indian Oil and Gas Leases; Approval of Operations regulations (43 CFR, Part 3160).

The NSO stipulation is a category of major constraints. NSO areas are open to fluid minerals leasing, but surface occupancy or surface-disturbing activities associated with fluid minerals leasing cannot be conducted on the surface of the land. Access to fluid mineral deposits would require directional drilling or drilling from outside the boundaries of the NSO area. This differs from areas identified as closed to leasing in which neither the surface area nor mineral estate is available for fluid minerals leasing.

L.2.3 Controlled Surface Use

CSU is a category of moderate constraint stipulations that allows some use and occupancy of public land while protecting identified resources or values. It is applicable to fluid minerals leasing and all activities associated with it, such as truck-mounted drilling, stationary drill rigs in unison, geophysical exploration equipment off designated routes, and construction of wells or pads. CSU areas are open to fluid minerals leasing, but the stipulation allows the BLM to require special operational constraints. Alternatively, the activity can be shifted more than 656 feet (200 meters) to protect the specified resource or value (refer to **Table L-2**, Controlled Surface Use Stipulations for Fluid Minerals Leasing).

L.2.4 Timing Limitations

Areas identified for TL, a moderate constraint, are closed to fluid minerals exploration and development, surface-disturbing activities, and intensive human activity for periods that may exceed 60 days. This stipulation does not apply to operation and basic maintenance, including associated vehicle travel, unless otherwise specified. Construction, drilling, completions, and other operations considered to be intensive are not allowed. Intensive maintenance, such as work-overs on wells, is not permitted. Administrative activities are allowed at the discretion of the BLM Authorized Officer (refer to **Table L-3**).

L.2.5 Lease Notice

A lease notice (LN), provides more-detailed information concerning limitations that already exist in law, lease terms, regulations, or operational orders. An LN also addresses special considerations for lessees when they plan their operations, but it does not impose additional restrictions. LNs are not an RMP-level decision, and new LNs may be added to fluid minerals leases at the time of sale. LNs apply only to leasable minerals, such as oil, gas, and geothermal, and not to other types of leases, such as livestock grazing or coal leases (refer to **Table L-4**).

L.2.6 Condition of Approval

Conditions of approval (COA) are requirements under which an application for permit to drill is approved, after a lease is issued. COAs are based on site-specific analysis and are designed to minimize, mitigate, or prevent effects on resource values or other uses of public lands. A particular condition of approval is not an RMP-level decision and is applicable only to fluid minerals leasing.

L.2.7 Project Mitigation and Monitoring

Stipulations are designed to provide resource-specific protections. Permit holders are responsible for monitoring and reporting deemed necessary to document and maintain mandated protective measures. Also, the BLM retains the right to modify the operations of all surface and other disturbance activities caused by the presence of humans. It also has the right to require additional specific or specialized mitigation. This would be required after a lessee submits a detailed plan of development or other project proposal, a monitoring report, and an environmental analysis of such.

L.3 EXCEPTIONS, MODIFICATIONS, AND WAIVERS

The BLM Authorized Officer could modify, make exceptions to, or waive stipulations and restrictions. These actions provide a viable and effective means of applying adaptive management techniques to development of fluid minerals leases.

L.3.1 Standard Modification, Exception, and Waiver

The standard exceptions, modifications, and waivers apply to all NSOs, CSUs, and TLs, unless otherwise stated. (In the following paragraphs, leasehold refers to fluid minerals leases.)

A *modification* is a change to the provisions of a lease stipulation or project, either temporarily or for the lease term or length of the project. Depending on the specific modification, the stipulation may or may not apply to all sites in the leasehold that the restrictive criteria are applied to. The BLM Authorized Officer may modify a stipulation or the area subject to the stipulation. This would be the case if he or she determines that the factors leading to its inclusion in the lease or project area have changed sufficiently.

The BLM Authorized Officer may modify a stipulation as a result of new information under one or more of the following circumstances:

- If the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP
- If the protection provided by the stipulation is no longer sufficient to meet resource objectives established in the RMP
- If the proposed operations would not cause unacceptable effects

The BLM Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analyses and may consult with other government agencies or the public to make this determination.

An *exception* is a one-time exemption for a particular site in the leasehold and is determined on a case-by-case basis. The exception continues to apply to all other sites in the leasehold. The BLM Authorized Officer may grant an exception to a stipulation. This would come about if he or she determines that the factors leading to its inclusion in the lease have changed sufficiently such that one of the following occurs:

- The protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP
- The proposed operations would not cause unacceptable effects

The BLM Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis. He or she may consult with other government agencies or the public to make this determination.

A *waiver* is a permanent exemption from a lease stipulation. When a waiver is granted, the stipulation no longer applies anywhere in the leasehold. The BLM Authorized Officer may waive a stipulation. This would be the case if he or she determines that the factors leading to its inclusion in the lease or project no longer exist. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis. He or she may be required to consult with other government agencies or the public to make this determination.

The environmental analysis document prepared for site-specific proposals, such as oil and gas development, such as applications for permits to drill (APD) and sundry notices, also needs to address any proposal to modify, except, or waive a surface stipulation.

Table L-1
No Surface Occupancy Stipulations for Fluid Minerals Leasing

Resource: *Soil Resources*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Slopes Susceptible to Mass Failure	Surface occupancy and use is prohibited on slopes susceptible to mass failure.	**Exception** The Authorized Officer may grant an exception to this stipulation if the operator submits a reclamation plan that clearly demonstrates effects from the proposed actions can be adequately mitigated. The plan must demonstrate that no other practicable alternatives exist for relocating the activity. The plan must include a detailed description of how the activity would: (1) control wind and water erosion; (2) control surface runoff; (3) minimize sediment production; (4) maintain site productivity; and (5) complete reclamation. The plan will consider avoidance, size limitations, timing restrictions (e.g. limiting wet condition road usage), physical mitigation, and offsite mitigation. **Modification:** The area affected by this stipulation may be modified by the Authorized Officer if it is determined that portions of area do not include areas susceptible to mass failure.	N	Y	N/N	N
Sensitive Soils	Surface occupancy and use would be prohibited. Prior to surface disturbance on sensitive soils, a reclamation plan must be approved by the Authorized Officer. The plan must demonstrate the following: (1) no other practicable alternatives exist for relocating the activity, (2) the activity will be located to reduce effects to soil and water resources, (3) site productivity will be maintained or restored, (4) surface runoff and sedimentation will be adequately controlled, (5) on- and off-site areas will be protected from accelerated erosion, (6) that no areas susceptible to mass wasting would be disturbed and (7) surface-disturbing activities will be prohibited during extended wet periods.	**Objective:** To maintain the chemical, physical, and biotic properties of soils, this includes maintaining soil productivity, soil stability, and soil biotic properties. This will prevent excessive erosion, potential mass wasting, and improve the likelihood of successful reclamation. **Waiver:** The Authorized Officer may waive this stipulation if it is determined that the entire leasehold does not contain sensitive soils. **Exception:** The Authorized Officer may grant an exception to this stipulation if the operator can demonstrate that the proposed action will not contribute to degradation of the soil resource (e.g. excessive soil erosion, mass wasting, and/or lost productivity) or downslope resource conditions (e.g. reduced water quality due to sedimentation). **Modification:** The Authorized Officer may modify the area affected by this stipulation if it is determined that portions of the leasehold do not contain sensitive soils.	N	Y	N/N	N

Resource: *Soil Resources*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
NSO Soils-Badlands, Rock Outcrop	Surface occupancy and use is prohibited on badlands and rock outcrop.	**Objective:** To prevent excessive soil erosion and to avoid disturbing areas subject to potential reclamation problems. **Waiver:** The Authorized Officer may waive this stipulation if it is determined that the entire leasehold does not include these types of areas. **Exception:** The Authorized Officer may not grant exceptions to this stipulation. **Modification:** The Authorized Officer may modify the area affected by this stipulation if it is determined that portions of the leasehold do not include these types of areas.	N	Y	N/Y	Y

Resource: *Water Resources*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Floodplains	Any surface use or occupancy would be strictly controlled or, if absolutely necessary, excluded from special areas. Within 500 feet or, when necessary, within the 25-year floodplain from reservoirs, lakes, and ponds and intermittent, ephemeral, or small perennial streams; 1,000 feet or, when necessary, within the 100-year floodplain from larger perennial streams, rivers, and domestic water supplies. (JVP Appendix B, Alternative A)	**Modification:** This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the BLM with concurrence of the Surface Management Agency. Distances may be made less restrictive depending on the actual ongoing conditions.	Y	N	Y/N	N

Resource: *Soil Resources*	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Water, Riparian, Wetland, and Floodplains	Surface occupancy and use is prohibited within 1,000 feet of perennial or intermittent streams, lakes, ponds, reservoirs, 100-year floodplains, wetlands, and riparian areas. *(Note: The 1,000-foot buffer for NSO in Alternative A applied only to perennial or intermittent streams. This NSO would apply within lakes, ponds, reservoirs, 100-year floodplains, wetlands, and riparian areas.)*	**Objective:** To protect the unique biological and hydrological features and functions associated with perennial and intermittent streams, lakes, ponds, reservoirs, floodplains, wetlands, and riparian areas. **Waiver:** The Authorized Officer may waive this stipulation if it is determined that the entire leasehold does not include these types of areas. **Exception:** No exceptions would be allowed in streams, natural lakes, or wetlands. An exception may be granted by the Authorized Officer for riparian areas, floodplains, and artificial ponds or reservoirs if the operator can demonstrate that: (1) there are no practicable alternatives to locating facilities in these areas, (2) the proposed actions would maintain or enhance resource functions, and (3) all reclamation goals and objectives would be met. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if it is determined that portions of the leasehold do not include these types of areas.	N	Y	N/N	N
State-designated Source Water Protection Areas	Surface occupancy and use is prohibited within State-designated Source Water Protection Areas.	**Objective**: To protect human health by minimizing the potential contamination of public water systems. Source water is untreated water from streams, rivers, lakes, or aquifers used to supply public water systems. Ensuring that source water is protected from contamination can reduce the costs of treatment and risks to public health. This stipulation would protect the State-designated Source Water Protection Areas that protect public water systems from potential contamination. **Waiver:** The Authorized Officer may waive this stipulation if it is determined that the entire leasehold does not include Source Water Protection Areas. **Exception:** The Authorized Officer may not grant exceptions to this stipulation. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if it is determined that portions of the leasehold do not include Source Water Protection Areas.	N	N	N/Y	Y

Resource: *Vegetative Communities*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Water, Riparian, Wetland, and Floodplains	Surface occupancy and use is prohibited within perennial or intermittent streams, lakes, ponds, reservoirs, 100-year floodplains, wetlands, and riparian areas.	**Objective -** To protect the unique biological and hydrological features and functions associated with perennial and intermittent streams, lakes, ponds, reservoirs, floodplains, wetlands, and riparian areas. **Waiver** – The Authorized Officer may waive this stipulation if it is determined that the entire leasehold does not include these types of areas. **Exception** – No exceptions would be allowed in streams, natural lakes, or wetlands. An exception may be granted by the Authorized Officer for riparian areas, floodplains, and artificial ponds or reservoirs if the operator can demonstrate that: (1) there are no practicable alternatives to locating facilities in these areas, (2) the proposed actions would maintain or enhance resource functions, and (3) all reclamation goals and objectives would be met. **Modification** – The Authorized Officer may modify the boundaries of the stipulated area if it is determined that portions of the leasehold do not include these types of areas.	N	N	N/Y	Y
Riparian-Wetland Areas	Surface occupancy and use is prohibited within 0.25 mile from riparian-wetland areas.	**Objective:** To protect the unique biological and hydrological features and functions associated with riparian-wetland areas. **Waiver:** The Authorized Officer may waive this stipulation if it is determined that the entire leasehold is not within 0.25 miles of these types of areas. **Exception:** No exceptions would be allowed in streams, natural lakes, or wetlands. An exception may be granted by the Authorized Officer for artificial ponds or reservoirs if the operator can demonstrate that: (1) there are no practicable alternatives to locating facilities in these areas, (2) the proposed actions would maintain or enhance resource functions, and (3) all reclamation goals and objectives would be met. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if it is determined that portions of the leasehold are not within 0.25 miles of these types of areas.	N	Y	N/N	N

Resource: ***Vegetative Communities***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Floodplains	Any surface use or occupancy would be strictly controlled or, if absolutely necessary, excluded from special areas. Within 500 feet or, when necessary, within the 25-year floodplain from reservoirs, lakes, and ponds and intermittent, ephemeral, or small perennial streams; 1,000 feet or, when necessary, within the 100-year floodplain from larger perennial streams, rivers, and domestic water supplies. (JVP Appendix B, Alternative A)	**Modification:** This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the BLM with concurrence of the Surface Management Agency. Distances may be made less restrictive depending on the actual ongoing conditions.	Y	N	Y/N	N

Resource: ***Fish and Wildlife***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Fisheries	Any surface use or occupancy would be strictly controlled or, if absolutely necessary, excluded within 500 feet of fishing reservoirs. (JVP/HRMP)	**Modification:** This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the BLM with concurrence of the Surface Management Agency. Distances may be made less restrictive depending on the actual ongoing conditions.	Y	N	N/N	N
Fisheries	Surface occupancy or use is prohibited within 0.5 mile from the centerline of streams or 0.5 mile from bank-full edge of lakes/ reservoirs containing Class 1 and 2 fisheries as defined by Montana Fish, Wildlife and Parks (MFWP) Crucial Areas Assessment Game Fish Quality.	**Objective**: To insure healthy aquatic habitats are maintained along Class 1 and 2 fisheries. **Waiver:** The Authorized Officer, after coordination with the state wildlife management agency, may waive this stipulation if the entire leasehold can be occupied without adversely effecting the habitat associated with the Class 1 and 2 fisheries. **Exception:** The Authorized Officer, after coordination with the state wildlife management agency, may grant an exception if the action is will not impair the function or suitability of the fisheries habitat. **Modification:** The Authorized Officer, after coordination with the state wildlife management agency, may modify the boundaries of the stipulated area if portions of the leasehold can be occupied without adversely effecting the habitat associated with the Class 1 and 2 fisheries.	N	Y	N/Y	Y

Resource: *Fish and Wildlife*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Fisheries	Westslope Cutthroat Trout: No surface occupancy or use is allowed within one-half mile from centerline of stream containing known populations of 99 – 100% genetically pure Westslope Cutthroat trout.	**Objective**: To ensure healthy aquatic habitat exists in drainages important to the viability of upper Missouri River Basin westslope cutthroat trout. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Waiver:** A waiver may be granted if the Montana Fish, Wildlife and Parks determines the stream is no longer considered important to the viability of the species. **Exception:** An exception may be granted after a site assessment is conducted and if the operator can demonstrate in a surface use plan of operations that adverse effects can be eliminated and activities would not affect sensitive trout populations. Apply the following mitigation measures: a) No net increase in sediment over existing condition. b) No adverse effects on water quality and quantity. **Modification:** None	N	N	N/Y	N
Fisheries	Westslope Cutthroat Trout: No surface occupancy or use is allowed within one-half mile from centerline of stream containing known populations of 90-99% genetically pure Westslope Cutthroat Trout.	**Objective**: To ensure healthy aquatic habitat exists in drainages important to the viability of Upper Missouri River and Columbia River Basins Westslope Cutthroat Trout. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Waiver:** A waiver may be granted if the Montana Fish, Wildlife and Parks determines the stream is no longer considered important to the viability of the species. **Exception:** An exception may be granted after a site assessment is conducted and if the operator can demonstrate in a surface use plan of operations that adverse effects can be eliminated and activities would not affect sensitive trout populations. Apply the following mitigation measures: a) No net increase in sediment over existing condition. b) No adverse effects on water quality and quantity. **Modification:** None	N	N	N/Y	N

Resource: *Fish and Wildlife*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Fisheries	Blue Ribbon Trout Stream: No surface occupancy or use is allowed within one-half mile from the centerline of Class I fishery streams (Blue Ribbon trout streams).	**Objective**: To ensure healthy aquatic habitat are maintained along Class I fisheries. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Waiver:** None **Exception:** An exception may be granted if the Montana Fish, Wildlife and Parks modifies the Class I fisheries rating. Application of the following mitigation measures apply: a) No net increase in sediment over existing condition. b) No adverse effects on water quality and quantity. **Modification:** None	N	N	N/Y	N
Fisheries	Bull Trout (Butte FO Portion): No surface occupancy or use is allowed within one-half mile from centerline of streams containing known populations of Bull Trout.	**Objective**: To ensure healthy aquatic habitat exists in drainages important to the viability of Bull Trout. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Waiver:** A waiver may be granted if the Montana Fish, Wildlife and Parks determines the stream is no longer considered important to the viability of the species. **Exception:** An exception may be granted after a site assessment is conducted and if the operator can demonstrate in a surface use plan of operations that adverse effects can be eliminated and activities would not affect sensitive trout populations. Apply the following mitigation measures: a) No net increase in sediment over existing condition. b) No adverse effects on water quality and quantity. **Modification:** None	N	N	N/Y	Y

Resource: ***Fish and Wildlife***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Fisheries and Aquatic Species	Surface occupancy and use is prohibited within 0.25 mile of designated reservoirs with fisheries.	**Objective:** Protection the fisheries and aquatic species. **Exception:** An exception to this stipulation can be granted by the Authorized Officer if the operator submits a plan that demonstrates that effects from the proposed action are acceptable or can be adequately mitigated. **Modification:** The boundaries of the stipulated area can be modified if the Authorized Officer determines that portions of the area can be occupied without adversely affecting the fisheries and recreational values of the reservoir. **Waiver**: This stipulation can be waived if the Authorized Officer determines that the entire leasehold is no longer a fishery and it can be occupied without adversely affecting the recreational values of the reservoir.	N	Y	N/Y	Y
Special Status Fisheries	No surface occupancy or use is allowed within 0.5 mile from centerline of streams that are identified by the BLM as having high restoration potential for westslope cutthroat trout, Yellowstone cutthroat trout, Arctic grayling, and/or bull trout.	**Objective:** To ensure healthy aquatic and riparian habitats are maintained in and along streams with the potential for native fish reintroductions and restoration. **Exception:** An exception may be granted after a site assessment is conducted and if the operator can demonstrate in a surface use plan of operations that adverse effects can be eliminated and activities would not affect potential habitat for native fish populations or degrade suitable habitat for native fish restoration/reintroduction. The following mitigation measures would apply: a. No net increase in sediment over existing condition. b. No adverse effects on water quality and quantity. **No WAIVER or MODIFICATION.**	N	Y	N/Y	Y

Resource: ***Fish and Wildlife***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Water Bird Nesting Colony	Surface occupancy and use is prohibited within 0.25 mile of a water bird nesting colony. Priority species for management includes special status species in addition to the following species regardless of special status designation: • American white pelican • Black-crowned night heron • Black tern • Caspian tern • Clark's grebe • Common tern • Double-crested cormorant • Forster's tern • Franklin's gull • Great blue heron • White-faced ibis	**Objective**: To protect nesting colonial-nesting birds identified as BLM priority species for management. **Waiver:** The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.25 mile of nest sites historically used by colonial-nest birds or if the habitat has been altered to an extent, future use by colonial nesting birds is unlikely. **Exception:** The Authorized Officer may grant an exception if the action will not result in colony abandonment. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.25 mile of colonial nest bird sites.	N	Y	N/Y	Y
Water Bird Nesting Colony	Surface occupancy and use is prohibited within 0.25 mile of a water bird nesting colony for BLM priority species for management. Special status species would be the priority species for management.	**Objective**: To protect nesting colonial-nesting birds identified as BLM priority species for management. **Waiver:** The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.25 mile of nest sites historically used by colonial-nest birds or if the habitat has been altered to an extent, future use by colonial nesting birds is unlikely. **Exception:** The Authorized Officer may grant an exception if the action will not result in colony abandonment. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.25 mile of colonial nest bird sites.	N	N	Y/N	N

Resource: ***Fish and Wildlife***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Crucial Winter Range	Surface occupancy and use is prohibited in crucial winter range for the following BLM priority species for management: • bighorn sheep • elk • greater sage-grouse • moose • mule deer • pronghorn • whitetail deer	**Objective:** To protect winter ranges crucial to the survival of 80 percent of the species identified as BLM priority species for management in the most severe of winters. **Waiver:** The Authorized Officer, after coordination with the state wildlife management agency, may waive this stipulation if the entire leasehold has been altered to an extent, future use by wintering wildlife is unlikely. **Exception:** The Authorized Officer, after coordination with the state wildlife management agency, may grant an exception if the action will not impair the function or suitability of the crucial winter range habitat. **Modification:** The Authorized Officer, after coordination with the state wildlife management agency, may modify the boundaries of the stipulated area if portions of the leasehold no longer support wintering wildlife.	N	Y	N/Y	Y
Crucial Winter Range	Surface occupancy and use is prohibited for BLM priority species for management. Special status species would be the priority species for management.	**Objective:** To protect winter ranges crucial to the survival of 80 percent of the species identified as BLM priority species for management in the most severe of winters. **Waiver:** The Authorized Officer, after coordination with the state wildlife management agency, may waive this stipulation if the entire leasehold has been altered to an extent, future use by wintering wildlife is unlikely. **Exception:** The Authorized Officer, after coordination with the state wildlife management agency, may grant an exception if the action will not impair the function or suitability of the crucial winter range habitat. **Modification:** The Authorized Officer, after coordination with the state wildlife management agency, may modify the boundaries of the stipulated area if portions of the leasehold no longer support wintering wildlife.	N	N	Y/N	N

Resource: *Fish and Wildlife*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Sharp-tailed Grouse Lek	Surface occupancy and use is prohibited on and within 0.5 mile of the perimeter of leks.	**Objective:** To protect leks for sharp-tailed grouse, BLM priority species for management. **Waiver:** The Authorized Officer may waive this stipulation after coordination with the state wildlife management agency if the entire leasehold is no longer within 0.5 mile of the perimeter of active leks active within the past 5 years or if the habitat has been altered to an extent, future use by sharp-tailed grouse is unlikely. **Exception:** The Authorized Officer, after coordination with the state wildlife management agency, may grant an exception if the action will not result in lek abandonment. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area after coordination with the state wildlife management agency if portions of the leasehold are no longer within 0.5 mile of the perimeter of leks active within the past 5 years or if the habitat has been altered to an extent, future use by sharp-tailed grouse is unlikely.	N	Y	Y/Y	Y
Bats	Prohibit surface-disturbing or disruptive activities within 0.25 mile of identified bat maternity roosts and hibernation areas that would adversely effect bats or their habitat.	**Objective:** To protect bat maternity roost and hibernation habitat. **Waiver:** The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.25 mile of bat maternity roost or hibernation habitat within the past 10 years. **Exception:** The Authorized Officer may grant an exception if the action will not impair the function or suitability of bat maternity roost or hibernation habitat. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.25 mile of bat maternity roost or hibernation habitat active within the past 10 years.	N	Y	N/Y	Y

Resource: *Fish and Wildlife*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Raptors[3]	Surface occupancy and use is prohibited within 0.25 mile of raptor nest sites active within the preceding 7 years[3] for the following BLM priority species for management. Priority species includes special status species in addition to the following species regardless of special status designation: • Burrowing Owl • Ferruginous Hawk • Golden Eagle • Long-eared Owl • Merlin • Northern Goshawk • Osprey • Prairie Falcon • Red-tailed Hawk • Sharp-shinned Hawk • Short-eared Owl • Swainson's Hawk	**Objective:** To protect nest sites of raptors identified as BLM priority species for management. **Waiver:** The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.25 mile of raptor nest sites active within the past 7 years or if the habitat has been altered to an extent, future use by nesting raptors is unlikely. **Exception:** The Authorized Officer may grant an exception if the action will not to result in nest territory abandonment. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.25 mile of raptor nest sites active within the past 7 years.	N	Y	N/Y	Y

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[3] Raptor definition for application of stipulations includes raptor species without species specific stipulations noted above. The exact list may vary by RMP but may include the following species: golden eagle, northern goshawk, ferruginous hawk, red-tailed hawk, sharp-shinned hawk, Swainson's hawk, prairie falcon, merlin, osprey, burrowing owl, long-eared owl, and short-eared owl. Because nest structures are often used by different species throughout the life of the structure, these distances and dates should be considered minimums and the site specific assessment should consider the needs of specific species present at the time of the action and adjust accordingly. The 0.25 mile buffer was the distance cited for most of these species in Romin and Muck (2002). Additional species specific information can be found in Whittington and Allen (2008). Species specific stipulations may be developed if warranted in the planning area, however the language of the stipulation should not vary from these examples, only the distances and dates used.

Resource: ***Fish and Wildlife***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Raptors[4]	Surface occupancy and use is prohibited within 0.25 mile of raptor nest sites active within the preceding 7 years[3] for BLM priority species for management. Special Status Species would be the priority species for management.	**Objective:** To protect nest sites of raptors identified as BLM priority species for management. **Waiver:** The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.25 mile of raptor nest sites active within the past 7 years or if the habitat has been altered to an extent, future use by nesting raptors is unlikely. **Exception:** The Authorized Officer may grant an exception if the action will not to result in nest territory abandonment. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.25 mile of raptor nest sites active within the past 7 years.	N	N	Y/N	N
Bald Eagle	Surface occupancy and use is prohibited within 0.5 mile of bald eagle nest sites active within the preceding 5 years[5].	**Objective:** To protect nest sites and nesting activities of bald eagles, a BLM priority species for management. **Waiver:** The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.5 mile of bald eagle nest sites active within the past 5 years or if the habitat has been altered to an extent, future use by nesting bald eagles is unlikely. **Exception:** The Authorized Officer may grant an exception, subject to coordination with the US Fish and Wildlife Service (USFWS), if the action will not to result in nest territory abandonment. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.5 mile of bald eagle nest sites active within the past 5 years.	N	Y	Y/Y	Y

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[4] Raptor definition for application of stipulations includes raptor species without species specific stipulations noted above. The exact list may vary by RMP but may include the following species: golden eagle, northern goshawk, ferruginous hawk, red-tailed hawk, sharp-shinned hawk, Swainson's hawk, prairie falcon, merlin, osprey, burrowing owl, long-eared owl, and short-eared owl. Because nest structures are often used by different species throughout the life of the structure, these distances and dates should be considered minimums and the site specific assessment should consider the needs of specific species present at the time of the action and adjust accordingly. The 0.25 mile buffer was the distance cited for most of these species in Romin and Muck (2002). Additional species specific information can be found in Whittington and Allen (2008). Species specific stipulations may be developed if warranted in the planning area, however the language of the stipulation should not vary from these examples, only the distances and dates used.

[5] Five years was selected for Bald Eagles based on USFWS National Bald Eagle Management Guidelines (2007) recommendations.

Resource: *Fish and Wildlife*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Peregrine Falcon	Surface occupancy and use is prohibited within 1 mile of peregrine falcon nest sites active within the preceding 7 breeding seasons[6].	**Objective:** To maintain the reproductive potential of raptor nest sites. **Waiver:** This stipulation may be waived if the Authorized Officer determines that the entire leasehold no longer contains habitat for raptor nest sites. **Exception:** The Authorized Officer may grant an exception if the operator submits a plan that demonstrates the effects to raptors from the proposed action can be adequately mitigated. **Modification:** The boundaries of the stipulated area may be modified if the Authorized Officer determines that portions of the area can be occupied without adversely affecting the production potential of raptor nest sites. The Authorized Officer may also modify the size and shape of the area based on studies documenting actual habitat suitability and/or local periods of actual use.	N	Y	Y/Y	Y
Piping Plover	Surface occupancy and use is prohibited within 0.25 mile of piping plover habitat.	**Objective:** To protect the nesting habitat of the federally threatened piping plover. **Waiver:** The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.25 mile of piping plover nesting habitat. **Exception:** The Authorized Officer, subject to consultation with the USFWS, grant an exception if the action will not result in nest territory abandonment or decrease productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior. **Modification:** The Authorized Officer may modify the boundaries of the stipulated areas if portions of the leasehold are no longer within 0.25 mile of piping plover nesting habitat.	N	Y	Y/Y	Y

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[6] American Peregrine Falcon Recovery Plan (Rocky Mountain Southwest Populations), US Fish and Wildlife Service, 1984 and Whittington and Allen (2008).

Resource: *Fish and Wildlife*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Prairie Dog Habitat	Surface occupancy and use is prohibited for oil and gas exploration and development within 0.25 mile of black-tailed or white-tailed prairie dog habitat. Prairie dog habitat is defined as the maximum extent of areas occupied by prairie dogs at any time during the last 10 years[7].	**Objective:** To protect prairie dog habitat, a BLM priority species for management, as well as burrowing owls, mountain plover, and other obligate species. **Waiver:** The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.25 mile of prairie dog colonies active within the past 10 years. **Exception:** The Authorized Officer may grant an exception if the action will not impair the function or suitability of the prairie dog habitat. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.25 mile of prairie dog habitat active within the past 10 years.	N	Y	Y/Y	Y
Bighorn Sheep Lambing	Surface occupancy and use is prohibited within bighorn sheep lambing areas.	**Objective:** To protect traditional bighorn sheep lambing habitat, crucial for successful recruitment of bighorn sheep lambs. **Waiver:** The Authorized Officer, after coordination with the state wildlife management agency, may waive this stipulation if the entire leasehold is no longer bighorn sheep lambing habitat. **Exception:** The Authorized Officer, after coordination with the state wildlife management agency, may grant an exception if the action will not to impair the function or suitability of the habitat. **Modification:** The Authorized Officer, after coordination with the state wildlife management agency, may modify the boundaries of the stipulated area if portions of the leasehold are no longer within bighorn sheep lambing habitat.	N	Y	Y/Y	Y

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[7] The 0.25 mile buffer would account for fluctuations in the size of prairie dog colonies and serves as a surrogate for the maximum extent of areas occupied by prairie dogs at any time during the last 10 years.

Resource: ***Fish and Wildlife***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Pallid Sturgeon	Surface occupancy and use is prohibited within 0.25 mile of the water's edge of the Missouri River to protect pallid sturgeon.	**Objective:** To protect the habitat of the federally endangered pallid sturgeon. **Waiver**: The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.25 mile of the water's edge of the Missouri River. **Exception:** The Authorized Officer, subject to consultation with the USFWS, may grant an exception if the action will not impair habitat of the pallid sturgeon. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if portions of the leasehold are not within 0.25 mile of the water's edge of the Missouri River.	N	Y	Y/Y	Y
Mountain Plover	Surface occupancy and use is prohibited in and within mountain plover habitat.	**Objective:** To protect mountain plover habitat and to maintain mountain plover populations. **Waiver:** The stipulation may be waived if the Authorized Officer determines that the entire leasehold is no longer mountain plover habitat. **Exception:** The Authorized Officer may grant an exception if portions of the area can be occupied without adversely affecting mountain plover habitat. **Modification:** The boundaries of the stipulated area may be modified if the Authorized Officer determines that portions of the area can be occupied without adversely affecting mountain plover habitat. The Authorized Officer may also modify the size and shape of the area based on studies documenting actual habitat suitability and/or local periods of actual use.	N	Y	Y/Y	Y
Sagebrush Focal Area	Surface occupancy and use is prohibited within the Sagebrush Focal Area (SFA).	**Objective:** To provide the protection needed in order to preserve areas of BLM-administered land identified by the USFWS as "strongholds" for greater sage-grouse having the highest densities of greater sage-grouse and other criteria important for the persistence of greater sage-grouse. **No WAIVER, EXCEPTION, or MODIFICATION.**	N	Y	Y/Y	Y

Resource: *Fish and Wildlife*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Greater Sage-Grouse Priority Habitat Management Areas (PHMAs)	To protect greater sage-grouse, a priority species for management, surface occupancy and use is prohibited for oil and gas exploration and development within greater sage-grouse Priority Habitat Management Areas (PHMAs).	**Objective:** To protect greater sage-grouse PHMA (outside SFAs). **Exception:** The Authorized Officer may grant an exception only where the proposed action: (i) Will not have direct, indirect, or cumulative effects on greater sage-grouse or its habitat; or, (ii) Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and will provide a clear conservation gain to greater sage-grouse. Exceptions based on conservation gain (ii) may only be considered in (a) PHMAs of mixed ownership where federal minerals underlie less than fifty percent (50%) of the total surface, or (b) areas of the public lands where the proposed exception is an alternative to an action occurring on a nearby parcel subject to a valid Federal fluid mineral lease existing as of the date of this RMP revision. Exceptions based on conservation gain must also include measures, such as enforceable institutional controls and buffers, sufficient to allow the BLM to conclude that such benefits will endure for the duration of the proposed action's effects. Any exceptions to this lease stipulation may be approved by the Authorized Officer only with the concurrence of the State Director. The Authorized Officer may not grant an exception unless the applicable state wildlife agency, the USFWS, and the BLM unanimously find that the proposed action satisfies (i) or (ii). Such finding shall initially be made by a team of one field biologist or other greater sage-grouse expert from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the appropriate BLM State Director, USFWS State Ecological Services Director, and state wildlife agency head for final resolution. In the event their finding is not unanimous, the exception will not be granted. Approved exceptions will be made publicly available at least quarterly. **No WAIVER or MODIFICATION.**	N	Y	Y/Y	Y

Resource: *Fish and Wildlife*	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Greater Sage-Grouse Leks in General Habitat Management Areas (GHMAs)	Surface occupancy and use is prohibited within 0.6 miles of the perimeter of greater sage-grouse leks in general habitat management areas.	**Objective:** To maintain the integrity of Greater Sage-Grouse general habitat management areas and promote movement and genetic diversity to support sustainable Greater Sage-Grouse populations. **Exception:** The Authorized Officer may grant exception if the action will not result in Greater Sage-Grouse lek abandonment. **Modification:** The Authorized Officer may modify the boundaries of the stipulation area if portions of the leasehold are no longer within 0.6 miles of the perimeter of an active lek, or a portion of the habitat has been altered to the point Greater Sage-Grouse no longer occupy the site and there is no likelihood of habitat capable of supporting Greater Sage-Grouse being restored. **Waiver:** The Authorized Officer may waive this stipulation if no portion of the leasehold is within 0.6 miles of the perimeter of an active lek.	N	Y	Y/Y	Y

Resource: *Cultural Resources*	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
National Register Sites	Any surface use or occupancy would be strictly controlled or, if absolutely necessary, excluded within 300 feet from sites eligible for or designated on the National Register of Historic Places (NRHP). (JVP)	**Modification:** This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the BLM with concurrence of the Surface Management Agency. Distances may be made less restrictive depending on the actual ongoing conditions.	Y	N	N/N	N
Cultural Resources	Surface occupancy and use prohibited within NRHP-eligible properties/districts.	**Objective:** To protect NRHP-eligible properties and districts. **Standard WAIVERS, EXCEPTIONS, and MODIFICATIONS apply.**	N	N	Y/N	N
Cultural Resources	Surface use and occupancy prohibited within NRHP-eligible properties/districts and cultural sites allocated to conservation for future use, traditional use, and public use.	**Objective:** To protect NRHP-eligible properties and districts and cultural sites allocated to conservation for future use, traditional use, and public use. **Standard WAIVERS, EXCEPTIONS, and MODIFICATIONS apply.**	N	N	N/Y	Y

Resource: *Paleontological Resources*	Stipulation	Objective, Waiver, Exception, Modification	Alternative A	Alternative B	Alternative C1/C2	Alternative D
Paleontological Areas	Surface occupancy and use prohibited within Egg Mountain and the Blacktail Paleontological Area.	**Objective:** To preserve and protect significant vertebrate fossils and paleontological locales. **Exception:** An exception to this stipulation can be granted by the Authorized Officer if the lessee or operator submits a plan which demonstrates that the adverse effects to significant paleontological resources can be mitigated through recovery and extensive recordation. Where effects to paleontological resources cannot be mitigated to the satisfaction of the surface management agency, surface occupancy on that area must be prohibited. **Modification:** The boundaries of the stipulated area can be modified if the Authorized Officer determines that portions of the designated site/locale can be occupied without adversely affecting the resource values. **No WAIVER.**	N	N	Y/Y	Y

Resource: *Lands with Wilderness Characteristics*	Stipulation	Objective, Waiver, Exception, Modification	Alternative A	Alternative B	Alternative C1/C2	Alternative D
Lands with Wilderness Characteristics	Surface occupancy and use is prohibited within areas that are managed to protect wilderness characteristics.	**Objective:** To protect wilderness characteristics as a priority over other multiple uses. **No WAIVER, EXCEPTION, or MODIFICATION.**	N	N	N/N	Y

Resource: *Recreation*	Stipulation	Objective, Waiver, Exception, Modification	Alternative A	Alternative B	Alternative C1/C2	Alternative D
Recreational Areas	Any surface use or occupancy would be strictly controlled or, if absolutely necessary, excluded within 300 feet of developed recreational areas or undeveloped recreational areas receiving concentrated public use. (JVP Appendix B, Alternative A)	**Modification:** This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the BLM with concurrence of the Surface Management Agency. Distances may be made less restrictive depending on the actual ongoing conditions.	Y	N	N/N	N

Resource: *Recreation*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Recreation Areas	No surface occupancy or use is allowed within developed recreation areas and undeveloped recreation areas receiving concentrated public use.	**Objective:** Protect developed recreation areas and undeveloped recreation areas receiving concentrated public use. **Exception:** An exception to this stipulation can be granted by the Authorized Officer if the operator submits a plan demonstrating that effects from the proposed action are acceptable or can be adequately mitigated. **Waiver**: This stipulation can be waived if the Authorized Officer determines that the entire leasehold no longer contains developed recreation areas or undeveloped recreation areas receiving concentrated public use. **Modification:** The boundaries of the stipulated area can be modified by the Authorized Officer if the recreation area boundaries are changed.	N	Y	N/Y	Y
Developed Recreation Sites	Surface occupancy and use prohibited within a 0.25 mile buffer from developed recreation sites and dispersed recreation sites receiving concentrated public use.	**Objective:** To protect the recreational experiences and benefits within a 0.25 mile buffer from developed recreation sites and dispersed recreation sites receiving concentrated public use. **Waiver:** The Authorized Officer may waive this stipulation if the entire recreation area is no longer a developed recreation site and it is no longer receiving concentrated public use. **Exception:** The Authorized Officer may grant an exception if the action will not impair the recreation experience and benefits. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area without adversely effecting the recreation experience and benefits.	N	Y	N/N	N

Resource: ***Recreation***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Developed Recreation Sites	No surface occupancy or use is allowed within 0.25 mile of developed recreation sites, regardless of administering agency.	**Objective:** To recognize and protect the public's opportunity for quality recreation experiences at those sites developed for that purpose. Since BLM recreation sites are generally developed to support the use of the surrounding lands, the one-quarter mile buffer offers some protection for perpetuating those opportunities for which the site was developed, as well as protecting capital investments at the site. **Waiver:** A waiver may be granted if a site is moved or eliminated. **Exception:** An exception may be granted if a site is moved or eliminated. **Modification:** The list of developed recreation sites may be modified if development is moved, or if a currently undeveloped site is developed in the future. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes.	N	N	N\Y	Y
Fisheries	Any surface use or occupancy would be strictly controlled or, if absolutely necessary, excluded within 500 feet of fishing reservoirs. (JVP/HRMP)	**Modification:** This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the BLM with concurrence of the Surface Management Agency. Distances may be made less restrictive depending on the actual ongoing conditions.	Y	N	N/N	N
Fisheries and Aquatic Species	Surface occupancy and use is prohibited within 0.25 mile of designated reservoirs with fisheries.	**Objective:** Protection the fisheries and aquatic species. **Exception:** An exception to this stipulation can be granted by the Authorized Officer if the operator submits a plan that demonstrates that effects from the proposed action are acceptable or can be adequately mitigated. **Modification:** The boundaries of the stipulated area can be modified if the Authorized Officer determines that portions of the area can be occupied without adversely affecting the fisheries and recreational values of the reservoir. **Waiver**: This stipulation can be waived if the Authorized Officer determines that the entire leasehold is no longer a fishery and it can be occupied without adversely affecting the recreational values of the reservoir.	N	Y	N/Y	Y

Resource: ***Recreation***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Fisheries and Aquatic Species	Surface occupancy and use is prohibited within 500 feet of designated reservoirs with fisheries.	**Objective:** Protection the fisheries and aquatic species. **Exception:** An exception to this stipulation can be granted by the Authorized Officer if the operator submits a plan that demonstrates that effects from the proposed action are acceptable or can be adequately mitigated. **Modification:** The boundaries of the stipulated area can be modified if the Authorized Officer determines that portions of the area can be occupied without adversely affecting the fisheries and recreational values of the reservoir. **Waiver**: This stipulation can be waived if the Authorized Officer determines that the entire leasehold is no longer a fishery and it can be occupied without adversely affecting the recreational values of the reservoir.	N	N	Y/N	Y
Arrow Creek BCA, Cemetery Road BCA, Crooked Creek BCA, and Judith Mountains BCA	No surface occupancy or use is allowed within the boundary of the backcountry conservation area (BCA).	**Objective:** To protect large, intact blocks of habitat and associated primitive recreational experiences and benefits within ERMAs. **Exception:** An exception to this stipulation can be granted by the Authorized Officer if the lessee or operator submits a plan which demonstrates that the adverse effects to wildlife and primitive recreational resources can be effectively mitigated. The Authorized Officer may grant an exception to a fluid mineral lease NSO stipulation only where the proposed action: (i) Would not have direct, indirect, or cumulative effects on wildlife habitat; fisheries resources, or primitive recreational experiences; or, (ii) Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and would provide a clear conservation gain to those resources. **Modification:** The boundaries of the stipulated area can be modified if the Authorized Officer determines that portions of the designated site/locale can be occupied without adversely affecting the resource values. **No WAIVER**	N	Y	N/N	N

Resource: ***Lands and Realty***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Occupied Buildings	Any surface use or occupancy would be strictly controlled or, if absolutely necessary, excluded within 300 feet from occupied buildings.	**Modification:** This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the BLM with concurrence of the Surface Management Agency. Distances may be made less restrictive depending on the actual ongoing conditions.	Y	N	N/N	N
City Limits or Residential Structures	Surface occupancy and use prohibited within 0.25 mile of incorporated city limits or residential structures.	**Objective:** To protect residential developments within and outside of incorporated communities (towns and subdivisions). **Waiver:** This stipulation may be waived if the lease is not within 0.25 mile of incorporated city limits or residential structures. **Standard EXCEPTIONS and MODIFICATIONS apply.**	N	Y	N/N	N
Residential Structures	Surface occupancy and use prohibited within 300 feet of residential structures.	**Objective:** To protect residential developments. **Waiver:** This stipulation may be waived if the lease is not within 300 feet of residential structures. **Standard EXCEPTIONS and MODIFICATIONS apply.**	N	N	Y/N	N

Resource: ***Areas of Critical Environmental Concern***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Blacktail Creek ACEC	Surface occupancy or use is prohibited in the Blacktail Creek ACEC.	**Objective:** To preserve and protect significant vertebrate fossils and paleontological locales. **Exception:** An exception to this stipulation can be granted by the Authorized Officer if the lessee or operator submits a plan which demonstrates that the adverse effects to significant paleontological resources can be mitigated through recovery and extensive recordation. Where effects to paleontological resources cannot be mitigated to the satisfaction of the surface management agency, surface occupancy on that area must be prohibited. **Modification:** The boundaries of the stipulated area can be modified if the Authorized Officer determines that portions of the designated site/locale can be occupied without adversely affecting the resource values. **No WAIVER.**	N	Y	N/N	N

Resource: *National Trails*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
National Scenic and Historic Trails	Surface occupancy and use prohibited within 0.5 mile of the remainder of national scenic and historic trails (i.e., trail corridors not containing High Potential Route Segments and Sites) and within 0.5 mile of either side of auto tour routes for national scenic and historic trails.	**Objective:** The purpose of this lease stipulation is to protect the nature and purposes; trail resources, qualities, values and associated settings; and primary use or uses of the historic and scenic trails, in accordance with the National Trails System Act. **Exception:** This stipulation may be excepted when the operator submits a comprehensive trail inventory, as outlined in Manual 6280, and presents a proposal which demonstrates resource values are not affected or that adverse effects can be adequately mitigated to prevent effects to: • The nature and purposes of the National Trail • National Trail resources, qualities, values, and associated settings. • National Trail primary use or uses. • The National Trail from the cumulative or trail-wide perspective. **No WAIVER or MODIFICATION.**	N	Y	Y/N	N
National Scenic Trails	Surface occupancy and use prohibited within national scenic and historic trails management corridors containing High Potential Route Segments and Sites, and within 300 feet, or within the viewshed (whichever is less) from NST and NHT centerlines.	**Objective:** The purpose of this lease stipulation is to protect the nature and purposes; trail resources, qualities, values and associated settings; and primary use or uses of the historic and scenic trails, in accordance with the National Trails System Act. **Exception:** This stipulation may be excepted when the operator submits a comprehensive trail inventory, as outlined in Manual 6280, and presents a proposal which demonstrates resource values are not affected or that adverse effects can be adequately mitigated to prevent effects to: • The nature and purposes of the trail • National Trail resources, qualities, values and associated settings. • National Trail primary use or uses. • The National Trail from the cumulative or trail-wide perspective. **Modification:** A modification may be granted should the trail be relocated or effects of the action will not be noticed by users of the trail.	N	N	N/Y	Y

Resource: ***National Trails***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
National Scenic Trails	No surface occupancy or use is allowed within 0.5 mile of the Continental Divide NST.	**Objective:** Preserve and protect scenic character of the landscape along the trail. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. **Waiver:** A waiver may be granted if the trail is moved from current location. **Exception:** An exception may be granted if this portion of the trail is relocated or if operator submits a plan that demonstrates the effects to the area and the user experiences can be mitigated. **Modification:** A modification may be granted should the trail be relocated or effects of the action will not be noticed by users of the trail.	N	N	N/Y	Y
National Historic Trails	Surface occupancy and use is prohibited within the National Trail Management Corridor of designated NHTs. Designated NHTs include the Lewis and Clark Trail and the Nez Perce Trail.	**Objective:** To protect the nature and purpose; trail resources, qualities, values, and associated settings; and primary use or uses of the historic trail, in accordance with National Trail System Act. **Exception:** An exception to this stipulation may be granted by the Authorized Officer if the lessee or project proponent completes a comprehensive trail inventory, as outlined in Manual 6280, and presents a proposal which demonstrates resource values are not affected or that adverse effects can be adequately mitigated to prevent effect to: • The nature and purposes of the National Trail. • National Trail resources, qualities, values, and associated settings. • National Trail primary use or uses. • The National Trail from the cumulative or trail-wide perspective. **Modification**: None. **Waiver:** None.	N	N	N/Y	Y

Resource: ***Wild and Scenic Rivers***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Suitable Segments Classified as "Wild"	Surface use and occupancy is prohibited within the study corridor of suitable wild and scenic river segments classified as "wild."	**Objective:** To protect wild and scenic river (WSR) outstandingly remarkable values, free-flowing nature, and water quality of suitable river segments. **Standard EXCEPTIONS, MODIFICATIONS, and WAIVERS apply.**	N	Y	N/N	N

Table L-2
Controlled Surface Use Stipulations for Fluid Minerals Leasing

Resource: *Air Resources*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
NO_2 NAAQS	Surface occupancy and use is subject to the requirement that each diesel-fueled non-road engine with greater than 200 horsepower design rating to be used during drilling or completion activities meets one of the following two criteria: (1) the engine was manufactured to meet EPA NOx emission standards for Tier 4 non-road diesel engines, or (2) the engine emits NOx at rates less than or equal to EPA emission standards for Tier 4 non-road diesel engines.	**Objective:** To protect air resources and meet the 1-hour NO_2 NAAQS. **Exception:** An exception may be granted by the AO if air quality modeling, air quality monitoring, or other information demonstrates compliance with the NO_2 NAAQS. **Modification:** This stipulation may be modified if the EPA or the applicable state environmental agency adds, deletes, or revises NOx emission standards for drill rig, completion rig, or non-road engines. **Waiver:** The stipulation may be waived if new information demonstrates that compliance with the NO_2 NAAQS will be achieved consistently throughout the lease area. The stipulation may also be waived if the NO_2 NAAQS is revoked or otherwise rendered inapplicable to drilling/completion operations.	N	Y	Y/Y	Y

Resource: *Soil Resources*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Slope	Apply CSU on slopes over 30 percent or 20 percent on extremely erodible or slumping soils (JVP App. B, Alt A).	**Modification:** This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the BLM with concurrence of the Surface Management Agency. Distances may be made less restrictive depending on the actual ongoing conditions.	Y	N	N/N	N

Resource: *Soil Resources*	Stipulation	Objective, Waiver, Exception, Modification	Alternative A	Alternative B	Alternative C1/C2	Alternative D
Soils - Sensitive Soils	Surface occupancy and use will be controlled on sensitive soils. Sensitive soils are determined using a combination of slope and soil erodibility. Prior to surface disturbance on sensitive soils, a reclamation plan must be approved by the Authorized Officer. The plan must demonstrate the following: (1) no other practicable alternatives exist for relocating the activity, (2) the activity will be located to reduce effects to soil and water resources, (3) site productivity will be maintained or restored, (4) surface runoff and sedimentation will be adequately controlled, (5) on- and off-site areas will be protected from accelerated erosion, (6) that no areas susceptible to mass wasting would be disturbed and (7) surface-disturbing activities will be prohibited during extended wet periods.	**Objective:** To maintain the chemical, physical, and biotic properties of soils, this includes maintaining soil productivity, soil stability, and soil biotic properties. This will prevent excessive erosion, potential mass wasting, and improve the likelihood of successful reclamation. **Waiver:** The Authorized Officer may waive this stipulation if it is determined that the entire leasehold does not contain sensitive soils. **Exception:** The Authorized Officer may grant an exception to this stipulation if the operator can demonstrate that the proposed action will not contribute to degradation of the soil resource (e.g. excessive soil erosion, mass wasting, and/or lost productivity) or downslope resource conditions (e.g. reduced water quality due to sedimentation). **Modification:** The Authorized Officer may modify the area affected by this stipulation if it is determined that portions of the leasehold do not contain sensitive soils.	N	N	N/Y	Y

Resource: *Water Resources*	Stipulation	Objective, Waiver, Exception, Modification	Alternative A	Alternative B	Alternative C1/C2	Alternative D
Madison Aquifer	Surface occupancy and use would be controlled on groundwater recharge areas for the Madison Aquifer. Surface-disturbing activities require a plan with design features that demonstrate how all actions maintain and/or improve water quality and quantity in the recharge areas. The plan will address: (a) potential effects to water quality and quantity, (b) mitigation to reduce effects to acceptable levels (including timing restrictions), (c) post project restoration, and (d) monitoring (the operator must conduct monitoring capable of detecting early signs of water quality contamination).	**Objective**: To protect human health, aquatic environments, and water users dependent upon water from the Madison Aquifer. **Waiver:** The Authorized Officer may waive this stipulation if it is determined that the entire leasehold does not include recharge areas for the Madison Aquifer. **Exception:** The Authorized Officer may not grant exceptions to this stipulation. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if it is determined that portions of the leasehold do not include recharge areas for the Madison Aquifer.	N	Y	N/N	N

Resource: ***Vegetative Communities***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Alluvial Materials	Surface occupancy and use would be controlled on alluvial material of modern day channels of the Judith and Musselshell Rivers, which are important areas for the development of riparian woodland forest as well as surface water and groundwater interaction. Surface-disturbing activities would require a plan with design features that demonstrate how all actions would maintain and/or improve the functionality of riparian/wetland areas. The plan will address: (a) potential effects to riparian and wetland resources, (b) mitigation to reduce effects to acceptable levels (including timing restrictions), (c) post project restoration, and (d) monitoring (the operator must conduct monitoring capable detecting early signs of changing riparian and/or wetland conditions).	**Objective:** To protect the unique biological and hydrological features associated with alluvial materials adjacent to the Judith and Musselshell Rivers. Recent channel migrations because of flooding on the Judith and Musselshell Rivers have been greater than what would have been protected under the state-stipulation for floodplains (MT-NSO Water, Riparian, Wetland, and Floodplains). **Waiver:** This stipulation can be waived by the Authorized Officer if it is determined that the entire lease area does not contain alluvial material of the modern day channels of the Judith and Musselshell Rivers. **Exception:** The Authorized Officer may grant an exception to this stipulation if the operator can demonstrate that the proposed action would not adversely effect river functions. **Modification:** The area affected by this stipulation can be modified by the Authorized Officer if it is determined that portions of the lease area do not contain alluvial materials of the modern day Judith River and Musselshell River channels.	No	Y	N/N	N

Resource: *Vegetative Communities*	Stipulation	Objective, Waiver, Exception, Modification	Alternative A	Alternative B	Alternative C1/C2	Alternative D
Riparian, Wetlands	Surface occupancy and use is subject to the following operating constraints: prior to surface occupancy and use within 300 feet of riparian and/or wetland areas, a plan must be approved by the Authorized Officer with design features that demonstrate how all actions would maintain and/or improve the functionality of riparian/wetland areas. The plan would address: (a) potential effects to riparian and wetland resources, (b) mitigation to reduce effects to acceptable levels (including timing restrictions), (c) post project restoration, and (d) monitoring (the operator must conduct monitoring capable of detecting early signs of changing riparian and/or wetland conditions).	**Objective:** To protect the unique biological and hydrological features associated with wetland and riparian areas. Disturbances adjacent to wetland and/or riparian areas (including road use) can adversely effect these sensitive areas. This stipulation would protect these features from indirect effects produced within the adjacent ground. This would also encompass the floodplain along most first to third order streams. **Waiver:** This stipulation can be waived by the Authorized Officer if it is determined that the entire lease area does not contain wetlands or riparian areas. **Exception:** The Authorized Officer may grant an exception to this stipulation if the operator can demonstrate that the proposed action would not adversely effect wetland or riparian function or associated water quality. **Modification:** The area affected by this stipulation can be modified by the Authorized Officer if it is determined that portions of the lease area do not contain wetlands or riparian areas.	N	N	N/Y	Y

Resource: *Special Status Species*	Stipulation	Objective, Waiver, Exception, Modification	Alternative A	Alternative B	Alternative C1/C2	Alternative D
Greater Sage-Grouse General Habitat Management Areas (GHMAs)	Surface use prohibited within 2 miles of a lek. Surface disturbing and disruptive activities within 2 miles of a lek will be avoided unless the project proponent can clearly demonstrated that the effects can be adequately mitigated and conservation actions or needed design features are included and the goals of this plan not compromised.	**Objective:** Within the Greater Sage-Grouse General Habitat, maintain integrity of the habitat, to support sustainable sage-grouse populations. **Exception:** The AO may grant an exception to specific requirements of this stipulation if the action, as proposed or conditioned will not compromise the habitat for sage-grouse and meet the goals for sage-grouse habitat. a) Surface disturbing/disruptive activities will prevent or minimize disturbance to Greater Sage-Grouse or their habitat. Except as identified above or during emergency situations, activities will not compromise the habitat. b) Continuous noise (related to long-term operations and/or activities) will be no greater than 49 decibels at 1/4 miles from the perimeter of the lek.	N	Y	Y/Y	Y

Resource: ***Special Status Species***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Greater Sage-Grouse General Habitat Management Areas (GHMAs) *(continued)*	*(see above)*	c) Temporary noise (related to installation, maintenance, one-time use, emergency operations, etc.) exceeding 49 decibels at 1/4 miles from the perimeter of a lek or surface disturbing/disruptive activities may be allowed, but only from 10 a.m. to 4 p.m. between March 15 and May 15. d) Manage water developments to reduce the spread of West Nile virus within sage-grouse habitat areas. e) Site and/or minimize linear ROW to reduce disturbance to sagebrush habitats. f) Maximize placement of new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors. g) Power lines will be buried, eliminated, designed or sited in a manner which does not effect sage-grouse. h) Placement of other high profile structures, exceeding 10 feet in height, will be eliminated, designed or sited in a manner which does not effect sage-grouse. i) Remote monitoring of production facilities must be utilized and all permit applications must contain a plan to reduce the frequency of vehicle use. j) Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes. k) Restore disturbed areas at final reclamation to pre-disturbance conditions or desired plant community. l) Permanent (longer than 2 months) structures which create movement must be designed or sited to minimize effects to sage-grouse. m) Consider use of off-site mitigation, (e.g. creation of sagebrush habitat, purchase conservation easements, or buying down grazing) with proponent dollars to offset habitat losses. n) Consider creation of a "Mitigation Trust Account" when effects cannot be avoided, minimized, or effectively mitigated through other means. If approved by the BLM, the proponent may contribute funding to maintain habitat function based on the estimated cost of habitat treatments or other mitigation needed to maintain the functions of effected habitats. Off-site mitigation should only be considered when no feasible options are available	N	Y	Y/Y	Y

Resource: *Special Status Species*	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Greater Sage-Grouse General Habitat Management Areas (GHMAs) *(continued)*	*(see above)*	to adequately mitigate within and immediately adjacent to the effected site, or when the off-site location will provide more effective mitigation of the effect than can be achieved on-site. **Modification:** The AO may modify the area subject to the stipulation if an environmental analysis finds a portion of the General Habitat Area is nonessential or no longer sage-grouse habitat. **Waiver:** The AO may waive this stipulation if no portion of the leasehold is within 2 miles of the perimeter of an active lek.	N	Y	Y/Y	Y

Resource: *Fish and Wildlife*	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Winter Range (pronghorn, elk, moose, bighorn sheep, mule and whitetail deer)	Prior to surface occupancy and use a plan shall be prepared by the proponent as a component of the application for permit to drill, sundry notice, etc. and approved by the Authorized Officer with confirmation from the state wildlife management agency. The operator shall not initiate surface-disturbing activities unless the Authorized Officer has approved the plan. The plan must demonstrate to the Authorized Officer's satisfaction the function and suitability of the habitat will not be impaired.	**Objective:** To protect winter range utilized during mild to severe winters by big game identified as BLM priority species for management; including; white-tailed deer, mule deer, elk, pronghorn, moose, and bighorn sheep. **Waiver:** The Authorized Officer, after coordination with the state wildlife management agency, may waive this stipulation if the entire leasehold is no longer big game winter range habitat. **Exception:** The Authorized Officer, after coordination with the state wildlife management agency, may grant an exception if the action will not impair the function or suitability of the winter range habitat. **Modification:** The Authorized Officer, after coordination with the state wildlife management agency, may modify the boundaries of the stipulated area if portions of the leasehold are no longer big game winter range habitat.	N	Y	Y/Y	Y

Resource: *Fish and Wildlife*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Elk Calving Grounds	Surface occupancy and use is subject to the following operating constraints: prior to surface occupancy and use, a plan shall be prepared by the proponent as a component of the application for permit to drill, sundry notice, etc. and approved by the Authorized Officer in coordination with the state wildlife management agency. The operator shall not initiate surface-disturbing activities unless the Authorized Officer has approved the plan. The plan must demonstrate to the Authorized Officer's satisfaction the function and suitability of the habitat will not be impaired.	**Objective:** To protect traditional elk calving ground habitat crucial for successful recruitment of elk calves. **Waiver:** The Authorized Officer, after coordination with the state wildlife management agency, may waive this stipulation if the entire leasehold is no longer elk calving habitat. **Exception:** The Authorized Officer, after coordination with the state wildlife management agency, may grant an exception if the action will not to impair the function or suitability of the elk calving habitat. **Modification:** The Authorized Officer, after coordination with the state wildlife management agency, may modify the boundaries of the stipulated area if portions of the leasehold are no longer within elk calving habitat.	N	Y	Y/Y	Y
Bighorn Sheep Range	Surface occupancy and use is subject to the following operating constraints: Prior to surface occupancy and use a plan shall be prepared by the proponent as a component of the application for permit to drill, sundry notice, etc., and approved by the Authorized Officer in coordination with the state wildlife management agency. The operator shall not initiate surface disturbing activities unless the Authorized Officer has approved the plan. The plan must demonstrate to the Authorized Officer's satisfaction that the function and suitability of the habitat will not be impaired.	**Objective:** To protect bighorn sheep and their habitats, a BLM priority species for management. **Waiver**: The Authorized Officer, after coordination with the state wildlife management agency, may waive this stipulation if the entire leasehold is no longer bighorn sheep habitat. **Exception:** The Authorized Officer, after coordination with the state wildlife management agency, may grant an exception if the action will not impair the function or suitability of the bighorn sheep habitat. **Modification:** The Authorized Officer, after coordination with the state wildlife management agency, may modify the boundaries of the stipulated area if portions of the leasehold are no longer within bighorn sheep habitat.	N	Y	Y/Y	Y

Resource: *Visual Resources*	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
VRM Class II, III, and IV	All surface disturbing activities and construction of semi-permanent and permanent facilities in VRM Class II, III, and IV areas may require special design, including location, painting and camouflage, to blend with the natural surroundings and meet the visual quality objectives for each respective class.	**Objective:** Control the visual effects of activities and facilities within acceptable levels. **No WAIVER, EXCEPTION, or MODIFICATION**	N	Y	N/Y	Y
VRM Class II	In order to retain the existing character of the landscape (VRM Class II Objective), oil and gas development activities will be located, designed, constructed, operated, and reclaimed within 2 years from initiation of construction so that activities should not attract attention of the casual observer. This stipulation does not apply to maintenance or workover activities.	**Objective:** To protect visual resource values while allowing energy development and related activities to occur which have been mitigated to retain the existing character of the landscape. **No WAIVER, EXCEPTION, or MODIFICATION.**	N	Y	Y/Y	Y

Resource: *Lands and Realty*	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Highways, County Roads, Trails	Surface occupancy and use controlled within 100 feet from the edge of the ROW from highways, designated county roads and appropriate federally-owned or controlled roads and recreation trails.	**Modification:** This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the BLM with concurrence of the Surface Management Agency. Distances may be made less restrictive depending on the actual ongoing conditions.	Y	N	N/N	N

Resource: *Wild and Scenic Rivers*	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Suitable Segments Classified as "Scenic" or "Recreational"	Surface use and occupancy is controlled within the study corridor of suitable wild and scenic river segments classified as "scenic" or "recreational."	**Objective:** To protect WSR outstandingly remarkable values, free-flowing nature, and water quality of suitable river segments. **Standard WAIVERS, EXCEPTIONS, and MODIFICATIONS apply.**	N	Y	NN	N

Resource: *Recreation*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Arrow Creek BCA, Cemetery Road BCA, Crooked Creek BCA, and Judith Mountains BCA	Surface occupancy and use is subject to the following operating constraint: Prior to surface use, occupancy or disturbance in BCAs, a plan shall be prepared by the proponent and approved by the AO, with notification to MFWP. The plan must facilitate the long-term maintenance of big game wildlife populations and promote public access to support wildlife-dependent recreation and hunting opportunities. Proposed activities may not alter or depreciate important recreational values located within Backcountry Conservation Areas.	**Objective:** To facilitate long-term maintenance of big game wildlife populations and access to support primitive recreation and hunting opportunities. **No WAIVER, EXCEPTION, or MODIFICATION.**	N	N	N/Y	N

Table L-3
Timing Limitation Stipulations Applicable to Fluid Minerals Leasing

Resource: *Soil Resources*	Stipulation	Objective, Waiver, Exception, Modification	Alternative			
			A	B	C1/C2	D
Wet Periods	Surface disturbing activities may be prohibited during muddy and/or wet soil periods. This limitation does not apply to operation and maintenance of producing wells using authorized roads. (HRA/JRA)	—	Y	N	N/N	N

Resource: ***Special Status Species***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Water bird Nesting Colony	Apply TL within 0.5 mile[1] of a water bird nesting colony from April 1 – July 15. Priority species for management includes special status species in addition to the following species regardless of special status designation: • American white pelican • Black-crowned night heron • Black tern • Caspian tern • Clark's grebe • Common tern • Double-crested cormorant • Forster's tern • Franklin's gull • Great blue heron • White-faced ibis	**Objective:** To protect nesting activities associated with colonial-nesting birds identified as BLM priority species for management. **Waiver**: The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.5 mile of an active colonial nesting bird colony. **Exception:** The Authorized Officer may grant an exception if the action will not result in nest territory abandonment or decrease productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.5 mile of an active nesting colony.	N	Y	N/Y	Y
Water bird Nesting Colony	Apply TL within 0.5 mile[1] of a water bird nesting colony from April 1 – July 15 for BLM Priority species for management/. Special Status species would be the priority species for management.	**Objective:** To protect nesting activities associated with colonial-nesting birds identified as BLM priority species for management. **Waiver**: The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.5 mile of an active colonial nesting bird colony. **Exception:** The Authorized Officer may grant an exception if the action will not result in nest territory abandonment or decrease productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.5 mile of an active nesting colony.	N	N	Y/N	N

Resource: ***Special Status Species***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Sharp-tailed Grouse Lek	Surface use is prohibited within 2 miles of the perimeter of sharp-tailed grouse leks from April 1 to July 15.	**Objective:** To protect nesting activities associated with sharp-tailed grouse, identified as BLM priority species for management. **Waiver**: The Authorized Officer may waive this stipulation after coordination with the state wildlife management agency if the entire leasehold is no longer within 2 miles of a lek, active within the past 5 years. **Exception:** The Authorized Officer, after coordination with the state wildlife management agency, may grant an exception if the action will not result in nest territory abandonment or decrease productivity, by substantially interfering with normal breeding. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area after coordination with the state wildlife management agency, if portions of the leasehold are no longer within 2 miles of a lek, active within the past 5 years.	N	Y	Y/Y	Y
Raptors[2]	Surface use is prohibited within 0.5 mile of active raptor nest sites from March 1 through July 31 for the following BLM priority species for management. Priority species includes special status species in addition to the following species regardless of special status designation: • Burrowing owl • Ferruginous hawk • Golden eagle • Long-eared owl • Merlin • Northern goshawk • Osprey • Prairie falcon • Red-tailed hawk • Sharp-shinned hawk • Short-eared owl • Swainson's hawk	**Objective:** To protect nesting activities associated with raptors identified as BLM priority species for management. **Waiver**: The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.5 mile of an active raptor nest. **Exception:** The Authorized Officer may grant an exception if the action will not to result in nest territory abandonment or decrease productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.5 mile of an active raptor nest.	N	Y	N/Y	Y

Resource: ***Special Status Species***	**Stipulation**	**Objective, Waiver, Exception, Modification**	**Alternative**			
			A	**B**	**C1/C2**	**D**
Raptors[2]	Surface use is prohibited within 0.5 mile of active raptor nest sites from March 1 through July 31 for BLM Priority Species for Management	**Objective:** To protect nesting activities associated with raptors identified as BLM priority species for management. **Waiver**: The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.5 mile of an active raptor nest. **Exception:** The Authorized Officer may grant an exception if the action will not to result in nest territory abandonment or decrease productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.5 mile of an active raptor nest.	N	N	Y/N	N
Mountain Plover	Surface use is prohibited within 0.25 mile of mountain plover habitat from April 1 through July 15.	**Objective:** To protect nesting activities associated with mountain plovers, a BLM priority species for management. **Waiver**: The Authorized Officer may waive this stipulation if the entire leasehold is no longer within 0.25 mile of mountain plover habitat. **Exception:** The Authorized Officer may grant an exception if the action will not to result in nest territory abandonment or decrease productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior of mountain plovers. **Modification:** The Authorized Officer may modify the boundaries of the stipulated area if portions of the leasehold are no longer within 0.25 mile of mountain plover habitat.	N	Y	Y/Y	Y

[1] Buffer distances of 0.5 mile are recommended by Bendel and Therres (1999), one of the few citations I could find which specifically addresses disturbance related to surface occupancy rather than just human disturbance. However, other citations suggest shorter distances for disturbance during the breeding season. Additional rational for distances related to colonial water birds is needed.

[2] Raptor definition for application of stipulations includes raptor species without species specific stipulations noted above. The exact list may vary by RMP but may include the following species: golden eagle, northern goshawk, ferruginous hawk, red-tailed hawk, sharp-shinned hawk, Swainson's hawk, prairie falcon, merlin, osprey, burrowing owl, long-eared owl, and short-eared owl. Because nest structures are often used by different species throughout the life of the structure, these distances and dates should be considered minimums and the site specific assessment should consider the needs of specific species present at the time of the action and adjust accordingly. The 0.25 mile buffer was the distance cited for most of these species in Romin and Muck (2002). Additional species-specific information can be found in Whittington and Allen (2008). Species specific stipulations may be developed if warranted in the planning area, however the language of the stipulation should not vary from these examples, only the distances and dates used.

Table L-4
Lease Notices Applicable to Fluid Minerals Leasing

Resource: *Water Resources/ Vegetative Communities*	Lease Notice	Alternative			
		A	B	C1/C2	D
Wetlands	The lease parcel is encumbered with a U.S. Fish and Wildlife Wetland and/or Grassland Easement to restrict draining, burning, filling, or leveling of wetlands and/or protection of grassland depending on the specific easement. The operator may be required to implement specific measures to reduce the effects of oil and gas operations on wetlands or grasslands on easements. Additional measures may be developed during the application for permit to drill during the on-site inspection, as well as the environmental review process, consistent with the lease rights granted and in accordance with 43 CFR 3101.1-2.	N	Y	Y/Y	Y

Resource: *Special Status Species*	Lease Notice	Alternative			
		A	B	C1/C2	D
Special Status Species	The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that would contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM would not approve any ground-disturbing activity that may affect any such species or requirements of the Endangered Species Act as amended, 16 USC § et seq., including completion of any required procedure for conference or consultation.	N	Y	Y/Y	Y
Migratory Bird Treaty Act	The Operator is responsible for compliance with provisions of the Migratory Bird Treaty Act by implementing one of the following measures; a) avoidance by timing; ground disturbing activities will not occur from April 15 to July 15; b) habitat manipulation; render proposed project footprints unsuitable for nesting prior to the arrival of migratory birds (blading or pre-clearing of vegetation must occur prior to April 15 within the year and area scheduled for activities between April 15 and July 15 of that year to deter nesting); or c) survey-buffer-monitor; surveys will be conducted by a BLM approved biologist within the area of the proposed action and a 300 foot buffer from the proposed project footprint between April 15 to July 15 if activities are proposed within this timeframe. If nesting birds are found, activities will not be allowed within 0.1 miles of nests until after the birds have fledged. If active nests are not found, construction activities must occur within 7 days of the survey. If this does not occur, new surveys must be conducted. Survey reports would be submitted to the appropriate BLM office.	N	Y	Y/Y	Y
Greater Sage-Grouse	The lease may in part, or in total contain important Greater Sage-Grouse habitats as identified by the BLM, either currently or prospectively. The operator may be required to implement specific measures to reduce effects of oil and gas operations on the Greater Sage-Grouse populations and habitat quality. Such measures shall be developed during the application for permit to drill on-site and environmental review process and will be consistent with the lease rights granted.	N	Y	Y/Y	Y

Resource: *Cultural Resources*	**Lease Notice**	**Alternative**			
		A	**B**	**C1/C2**	**D**
Cultural Resources Lease	This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Executive Order 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the National Historic Preservation Act and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.	Y	Y	Y/Y	Y
Cultural Resources	The surface management agency is responsible for assuring that the leased lands are examined to determine if cultural resources are present and to specify mitigation measures. Guidance for application of this requirement can be found in NTL-MSO-85-1. This notice would be consistent with present Montana guidance for cultural resource protection related to oil and gas operations (NTL-MSO-85-1).	N	Y	Y/Y	Y
Sacred and Historic Properties	Lease is located adjacent to known sacred sites and historic properties, and contains high potential for National Register eligible historic and cultural properties. Lessees are notified that archaeological resource inventory and mitigation costs may be high within this area. A cultural plan of operations will be developed in consultation with the Field Office and must be approved before field development takes place. All surface use plans will be presented to the Field Office archaeologist for review.	N	Y	Y/Y	Y

Resource: *Paleontological Resources*	**Lease Notice**	**Alternative**			
		A	**B**	**C1/C2**	**D**
Paleontological Resource Inventory Requirement	This lease has been identified as being located within geologic units rated as being moderate to very high potential for containing significant paleontological resources. The locations meet the criteria for Class 3, 4 and/or 5 as set forth in the Potential Fossil Yield Classification System, WO IM 2008-009, Attachment 2-2. The BLM is responsible for assuring that the leased lands are examined to determine if paleontological resources are present and to specify mitigation measures. Guidance for application of this requirement can be found in WO IM 2008-009 dated October 15, 2007, and WO IM 2009-011 dated October 10, 2008. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or project proponent shall contact the BLM to determine if a paleontological resource inventory is required. If an inventory is required, the lessee or project proponent will complete the inventory subject to the following: • the project proponent must engage the services of a qualified paleontologist, acceptable to the BLM, to conduct the inventory. • the project proponent will, at a minimum, inventory a 10-acre area or larger to incorporate possible project relocation which may result from environmental or other resource considerations. • paleontological inventory may identify resources that may require mitigation to the satisfaction of the BLM as directed by WO IM 2009-011.	N	Y	Y/Y	Y

Resource: *Lands and Realty*	**Lease Notice**	**Alternative**			
		A	**B**	**C1/C2**	**D**
Land Use Authorizations	Land Use Authorizations incorporate specific surface land uses allowed on BLM-administered lands by Authorized Officers and those surface uses acquired by BLM on lands administered by other entities. These BLM authorizations include rights-of-way, leases, permits, conservation easements, and Recreation and Public Purpose Act (R&PPA) leases and patents. The rights acquired, reserved, or withdrawn by the BLM for specified purposes include non-oil and gas leases, conservation easements, archeological easements, road easements, fence easements, and administrative site withdrawals. The existence of such land use authorizations shall not preclude the leasing of the oil and gas. The locations of land use authorizations are noted on the oil and gas plats and in LR2000. The plats are a visual source noting location; LR2000 provides location by legal description through the Geographic Cross Reference program. The specifically authorized acreage for land use should be avoided by oil and gas exploration and development activities. All authorized surface land uses are valid claims to prior existing rights unless the authorization states otherwise. The right of the Secretary to issue future land use authorizations on an oil and gas lease is reserved by provision of Section 29 of the Mineral Leasing Act, 30 U.S.C.	N	Y	Y/Y	Y
Setback from Human Occupied Residences	The lease area may contain human occupied residences. Under Regulation 43 CFR 3101.1-2 and terms of the lease (BLM Form 3100-11), the Authorized Officer may require reasonable measures to minimize adverse effects to other resource values, land uses, and users not addressed in lease stipulations at the time operations are proposed. Such reasonable measures may include, but are not limited to, modification of siting or design of facilities, which may require relocating proposed operations up to 200 meters, but not off the leasehold. The setback requirement of 500 feet from human occupied residences has been established based upon the best information available. The following condition of approval may be applied as a result of the APD process during the on-site inspection and the environmental review unless an acceptable plan for mitigation of effects is reached between the resident, lessee and BLM: • Facilities will not be allowed within 500 feet of human occupied residences. The intent of this Lease Notice is to provide information to the lessee that would help design and locate oil and gas facilities to preserve the aesthetic qualities around human occupied residences.	N	Y	Y/Y	Y
Cemeteries	Portions of the lands in this parcel are occupied by a cemetery. As per the Standard Stipulation (May 2001) attached to this lease, occupancy will be excluded from the cemetery and a 300 foot buffer zone around the cemetery	N	Y	Y/Y	Y

Appendix M

Summary of the Lewistown Field Office Wilderness Characteristics: 2014 Update

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Appendix M. Summary of the Lewistown Field Office Wilderness Characteristics: 2014 Update

M.1 INTRODUCTION

As part of the land use planning process for the Lewistown Resource Management Plan (RMP), the US Department of the Interior, Bureau of Land Management (BLM) assessed public lands in the Lewistown RMP Planning Area to determine whether wilderness characteristics are present outside of existing Wilderness Study Areas (WSAs). The BLM reviewed original 1980 wilderness inventories and those lands not in the 1980 inventories that met the 5,000 contiguous acre criteria, to identify lands with potential wilderness characteristics.

This appendix provides summary information about wilderness characteristics. The Lewistown Planning Area Wilderness Characteristics: 2014 Update provides more detail, including maps of each inventoried area. The report is available on the Lewistown RMP web page at http://www.blm.gov/mt/st/en/fo/lewistown_field_office.html.

Of the 54 areas identified through the review, 32 were found to possess wilderness characteristics. The BLM developed a range of RMP alternatives and analyzed effects associated with the various management prescriptions designed to protect these characteristics. Decisions could protect all, some (including portions of some), or none of the identified lands.

M.1.1 BLM Authority and the Land Use Planning Process

Land use plans identify broad-scale decisions to guide future land management actions and subsequent site-specific implementation decisions. The BLM Land Use Planning Handbook (1601-1[1]) provides guidance to BLM employees for implementing BLM land use planning requirements. In addition, Appendix C, Section I (Natural, Biological, and Cultural Resources), K (Wilderness Characteristics) of BLM Handbook 1601-1 directs BLM field offices to identify decisions to protect or preserve wilderness characteristics (including sufficient size, naturalness, and outstanding opportunities for solitude or primitive and unconfined recreation). Specific guidance for assessing wilderness characteristics is provided in BLM Manual 6310, Conducting Wilderness Characteristics Inventory on BLM Lands[2].

While BLM authority to conduct wilderness reviews and establish new WSAs under Federal Land Policy and Management Act (FLPMA) Section 603 expired in 1993, the BLM has authority under FLPMA Sections 102 and 201 to maintain a current inventory of all public lands and their resources, including wilderness characteristics. Through the land use planning process, the BLM must consider all available information to determine the mix of resource use and protection that best serves the FLPMA multiple-use mandate.

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[1] BLM. Handbook H-1601-1—Land Use Planning Handbook. Rel. 1-1693. Washington, DC. March 11, 2005. Internet website: https://www.blm.gov/style/medialib/blm/ak/aktest/planning/planning_general.Par.65225.File.dat/blm_lup_handbook.pdf.

[2] BLM. Manual 6310—Conducting Wilderness Characteristics Inventory on BLM Lands. Rel. 6-129. Washington, DC. March 15, 2012. Internet website: https://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.38337.File.dat/6310.pdf.

The management of areas found to possess wilderness characteristics is addressed through the development of a range of RMP alternatives. Within each alternative, the BLM identifies appropriate portions of land and develops effective management strategies (including management prescriptions, stipulations, and allowable uses).

The one existing WSA within the planning area, Square Butte, will continue to be managed to protect its wilderness characteristics according to BLM Manual 6330, Management of Wilderness Study Areas[3], until Congress designates it as wilderness or releases it for other uses.

M.1.2 Scope of Assessment

The BLM considered and evaluated wilderness characteristics for all BLM-administered lands in the planning area outside of the existing WSA. The assessment did not include National Forest System lands or other lands not administered by the BLM.

FLPMA requires that the BLM maintain a current inventory of conditions and resources on public lands, including wilderness characteristics. The last inventory of wilderness characteristics was completed in 1980, well before this RMP revision. This update of the Lewistown Field Office (LFO) land with wilderness characteristics takes into consideration the possibility that conditions on the ground may have changed during this interval.

In performing this assessment, the LFO performed the following:

- Reviewed the 1979 Montana Initial Wilderness Inventory and the 1980 BLM Montana Wilderness Inventory
- Updated information when necessary to ensure that information was current and accurate
- Assessed potential lands in the planning area that met the 5,000-acre criteria but that were not in the 1980 inventory

M.2 WILDERNESS CHARACTERISTICS

BLM Manual 6310 defines wilderness characteristics as consisting of the following:

- Sufficient size
- Naturalness
- Outstanding opportunities for solitude or primitive and unconfined recreation
- Supplemental values

To have wilderness characteristics, an area must meet each of the first three criteria described below.

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[3] BLM. Manual 6330—Management of Wilderness Study Areas. Rel. 6-134. Washington, DC. July 13, 2012. Internet website: https://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.31915.File.dat/6330.pdf.

M.2.1 Sufficient Size

The area is roadless and has over 5,000 acres of contiguous BLM-administered lands or is of sufficient size to make practicable its use in an unimpaired condition. Areas adjacent to wilderness areas or WSAs that are less than 5,000 acres may have wilderness characteristics. State or private lands are not included in making this acreage determination.

Roadless Definitions

For purposes of conducting wilderness characteristics inventories, the BLM uses definitions found on page 17 of House Report 94-1163 (May 15, 1976), released before the enactment of FLPMA. In the report, "roadless" refers to

> ...the absence of roads which have been improved and maintained by mechanical means to insure relatively regular and continuous use. A way maintained solely by the passage of vehicles does not constitute a road.

The BLM adopted the following sub-definitions of words and phrases related to roads:

- Improved and maintained—Actions taken by people to keep the road open to vehicle traffic. "Improved" does not necessarily mean formal construction; "maintained" does not necessarily mean annual maintenance
- Mechanical means—Use of hand or power machinery or tools
- Relatively regular and continuous use—Vehicular use that has occurred and will continue to occur on a relatively regular basis. Examples are access roads for equipment to maintain a stock water tank or other established water sources, which may entail lengthy return intervals for this purpose; access roads to maintained recreation sites or facilities; or access roads to mining claims

A route established or maintained solely by the passage of vehicles would not be considered a road, even if it were used on a relatively regular and continuous basis. Vehicle routes constructed by mechanical means, but that are no longer being maintained by mechanical methods, are not roads. Sole use of hands and feet to move rocks or dirt without the use of tools or machinery does not meet the definition of mechanical means. Roads need not be regularly maintained but rather maintained when road conditions warrant actions to keep them in a usable condition. A dead-end (cherry-stem) road can form the boundary of an inventory area and does not, by itself, disqualify an area from being considered roadless.

M.2.2 Naturalness

Lands and resources exhibit a high degree of naturalness when affected primarily by the forces of nature and where the imprint of human activity is substantially unnoticeable (BLM Instruction Memorandum [IM] 2003-275, Attachment 1).

The naturalness of an area may be influenced by the presence or absence of roads and trails, fences, or other developments; the nature and extent of landscape modifications; the presence of native vegetation communities; and the connectivity of habitats. The presence and diversity of wildlife species are recognized as an indicator of naturalness.

Examples of human-made features that may be considered substantially unnoticeable, in certain cases are trails, trail signs, bridges, fire towers, fire breaks, fire pre-suppression facilities, pit toilets, fisheries enhancement facilities, fire rings, hitching posts, snow gauges, water quantity and quality measuring devices, research monitoring markers and devices, radio repeater sites, air quality monitoring devices, fences, spring developments, overgrown and barely visible two-track ways, and small reservoirs.

M.2.3 Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation

Solitude

Visitors may have outstanding opportunities for solitude when the sights, sounds, and evidence of other people are rare or infrequent or where visitors can feel isolated, alone, or secluded from others.

Primitive and Unconfined Recreation

Visitors may have outstanding opportunities for primitive and unconfined types of recreation where the use of the area is through nonmotorized, non-mechanical means and where no or minimal developed recreation facilities are encountered.

M.2.4 Supplemental Values

The area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

Supplemental values may be present within the inventory units but are not a required component of wilderness character; they will be described but not used as a mechanism to affect a final finding.

M.3 ASSESSMENT PROCESS

In accordance with BLM policy outlined in BLM Manual 6310, the BLM assessment team implemented the following:

- Analyzed Geographic Information System (GIS) data to identify blocks of BLM-administered land greater than 5,000 acres or adjacent to a WSA and lands that do not contain improved and maintained BLM roads, county roads, or highways (wilderness inventory roads) or rights-of-way
- Assessed Google Earth and BLM aerial imagery to eliminate blocks of land that clearly lack wilderness characteristics of naturalness. The most common features indicating a lack of naturalness included extreme vegetative manipulations and distinct roads, effects from historical or current uses (mineral development, agriculture, and forestry), or a high concentration of noticeable range improvements. Also considered was the ratio of the length of each area's perimeter to its acreage as well as visual resource inventory (VRI) classifications
- Consulted with BLM field staff familiar with assessment areas to elicit additional information and substantiate findings on areas eliminated from consideration
- Conducted field visits to verify preliminary findings and complete inventories for qualifying areas. Initial inventories of the areas were compiled by a college intern
- Coordinated with cooperating agencies to review preliminary findings and provide comments and additional information

M.3.1 Assessment Tools

The BLM assessment team used the tools described below in evaluating areas for consideration and in completing the wilderness characteristics assessment.

Past Wilderness Inventories

The BLM reviewed the 1979 Montana Initial Wilderness Inventory, the 1980 BLM Montana Wilderness Inventory, and the Montana Statewide Wilderness Study Report Volumes I and II. This review enabled the BLM to determine whether any new information is available that was not considered as part of the original inventories. As the larger landscape experiences population growth and increased development, perceptions will change as to what constitutes solitude and outstanding opportunities for primitive and unconfined recreation change.

Other Documents and Data

The following information sources were considered in drafting the assessment:

- BLM Montana Wilderness Initial Inventory 1979 dataset
- BLM Montana Wilderness Final Inventory 1980 dataset
- Rocky Mountain Front Heritage Act
- Lewis and Clark National Forest Plan
- Field investigation notes and photos with detailed descriptions
- Range improvement records (LFO Range Management Specialist and GIS)
- Greater-sage grouse GIS datasets
- Master Title Plats
- Route analyses (if needed)
- VRI classifications
- Northern Continental Divide Ecosystem (NCDE) Grizzly Bear Primary Conservation Area (PCA)
- BLM LR2000 databases (including rights-of-way, mining claims, and oil and gas leasing)
- Special Designations datasets (e.g., WSAs, areas of critical environmental concern, and outstanding natural areas)
- LFO FAMS records (maintained BLM roads)
- LFO range allotment management records
- LFO Special Recreation Permits geodatabase
- Hunting districts datasets
- LFO oil and gas lease GIS datasets
- LFO travel and transportation GIS datasets
- Designated Wilderness, WSAs, and Potential Wilderness in surrounding public land

M.4 ASSESSMENT AREAS

The wilderness characteristics assessment describes known valid existing rights, grandfathered uses, and public land investments in the areas. BLM staff verified new information during field surveys.

Table M-1, Planning Area Lands Assessed for Wilderness Characteristics, identifies the planning area lands detailed in this assessment.

Table M-1
Planning Area Lands Assessed for Wilderness Characteristics

Name	Total Inventoried Acreage[1]	Acreage with Wilderness Characteristics	Acreage without Wilderness Characteristics
Armells Creek[2]	18,982	18,982	0
Arrow Creek	9,322	0	9,322
Beaver Meadows	593	0	593
Big Snowies Tack-On A-1	120	0	120
Big Snowies Tack-On A-2	150	0	150
Big Snowies Tack-On A-3	91	0	91
Big Snowies Tack-On A-4	39	0	39
Big Snowies Tack-On A-5	717	0	717
Big Snowies Tack-On B-1	146	146	0
Big Snowies Tack-On B-2	312	312	0
Big Snowies Tack-On B-3	114	114	0
Big Snowies Tack-On B-4	39	39	0
Biggett	5,011	5,011	0
Blind Horse Creek	4,917	4,917	0
Blood Creek	20,855	20,855	0
Carroll Coulee	6,944	6,944	0
Carter Coulee	12,409	12,409	0
Cat Creek	7,841	0	7,841
Cemetery Road	10,921	10,921	0
Chain Buttes	7,647	7,647	0
Chimney Bend[2]	17,009	17,009	0
Chute Mountain	3,208	3,208	0
Cottonwood	13,063	13,063	0
Deep Creek/Battle Creek	3,073	3,073	0
Dog Creek South[2]	12,590	12,590	0
Dovetail Creek	15,868	15,868	0
Drag Creek	22,010	22,010	0
Dry Armell's	9,223	0	9,223
Dry Blood	5,373	0	5,373
Dunn Ridge	10,060	10,060	0
Ear Mountain Part A	1,039	1,039	0
Ear Mountain Part B	765	765	0
Elk Creek	5,504	0	5,504
Fargo Coulee[2]	8,017	8,017	0
Fort Musselshell Tack-On A	1,372	1,372	0
Fort Musselshell Tack-On B	611	611	0
Horse Camp Trail	11,892	11,892	0
Little Box Elder Creek	6,693	0	6,693
Little Crooked Creek	12,172	12,172	0
Middle Fork Judith Tack-On	118	0	118
Missouri River Island MT-075-123	22	0	22
Missouri River Island MT-075-124	11	0	11
Missouri River Island MT-075-125	2	0	2
Missouri River Island MT-075-126	17	17	0

Name	Total Inventoried Acreage[1]	Acreage with Wilderness Characteristics	Acreage without Wilderness Characteristics
Petroleum North Tier	2,387	0	2,387
Pike Creek	12,315	0	12,315
Pyramid Peak	5,171	0	5,171
Red Mountain	6,158	0	6,158
Spear Coulee	5,044	5,044	0
Thompson Coulee	5,377	5,377	0
Welter Divide	5,805	0	5,805
West Crooked Creek	20,298	20,298	0
Woodhawk Creek[2]	5,727	0	5,727

[1] Reflects total BLM acreage within the RMP planning area. Acreages generated through GIS mapping may vary due to rounding inconsistencies and different mapping techniques.

[2] Unit partially within the Upper Missouri River Breaks National Monument. Management decisions for portions of units with wilderness characteristics in the Monument are not made as part of this RMP.

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Appendix N

BLM Standards for Rangeland Health and Guidelines for Livestock Grazing Management

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Appendix N. BLM Standards for Rangeland Health and Guidelines for Livestock Grazing Management

Note: These standards and guidelines apply to the Lewistown and Malta Field Offices

N.1 STANDARDS

Standards are statements of physical and biological condition or degree of function required for healthy sustainable rangelands. Achieving or making significant and measurable progress towards these functions and conditions is required of all uses of public rangelands. Historical data, when available, should be used when assessing progress towards these standards.

N.1.1 Lewistown STANDARD #1: Uplands are in proper functioning condition.

This means that soils are stable and provide for capture, storage and safe release of water appropriate to soil type, climate and landform. The amount and distribution of ground cover (i.e., litter, live and standing dead vegetation, microbiotic crusts, and rock/gravel) for identified ecological site(s) or soil-plant associations are appropriate for soil stability.

Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/surface scaling and compaction layers below the soil surface is minimal. Ecological processes including hydrologic cycle, nutrient cycle and energy flow are maintained and support healthy biotic populations. Plants are vigorous, biomass production is near potential and there is a diversity of species characteristic of and appropriate to the site. Assessing proper functioning conditions will consider use of historical data.

- As indicated by

  Physical Environment
  - erosional flow patterns;
  - surface litter;
  - soil movement by water and wind;
  - soil crusting and surface sealing;
  - compaction layer;
  - rills;
  - gullies;
  - cover amount; and
  - cover distribution.

  Biotic Environment
  - community richness;
  - community structure;

- exotic plants;
- plant status;
- seed production;
- recruitment; and
- nutrient cycle.

N.1.2 Lewistown STANDARD #2: Riparian and wetland areas are in proper functioning condition.

This means that the functioning condition of riparian-wetland areas is a result of the interaction among geology, soil, water and vegetation. Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid flood plain development; improve flood water retention and groundwater recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for native fish production, waterfowl breeding, and other uses appropriate for the area that will support greater species richness.

The riparian-wetland vegetation is a mosaic of species richness and community structure serving to control erosion, shade water, provide thermal protection, filter sediment, aid flood plain development, dissipate energy, delay flood water, and increase recharge of groundwater where appropriate to landform. The stream channels and flood plain dissipate energy of high waterflows and transport sediment appropriate for the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity), climate, and landform. Soils support appropriate riparian- wetland vegetation, allowing water movement, filtering sediment, and slowing ground water movement for later release. Stream channels are not entrenching beyond natural climatic variations and water levels maintain appropriate riparian-wetland species.

Riparian areas are defined as land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lake shores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil. Assessing proper functioning conditions will consider use of historical data.

- As indicated by:

  Hydrologic
  - flood plain inundated in relatively frequent events (1-3 years);
  - amount of altered streambanks;
  - sinuosity, width/depth ratio, and gradient are in-balance with the landscape setting (i.e., landform, geology, and bioclimatic region); and
  - upland watershed not contributing to riparian degradation.

  Erosion Deposition
  - plain and channel characteristics; i.e., rocks, coarse and/or woody debris adequate to dissipate energy;

  - point bars are being created and older point bars are being vegetated;
  - lateral stream movement is associated with natural sinuosity;
  - system is vertically stable; and
  - stream is in balance with water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition).

  Vegetation

  - reproduction and diverse age class of vegetation;
  - diverse composition of vegetation;
  - species present indicate maintenance of riparian soil moisture characteristics;
  - streambank vegetation is comprised of those plants or plant communities that have deep binding root masses capable of withstanding high streamflow events;
  - utilization of trees and shrubs;
  - riparian plants exhibit high vigor;
  - adequate vegetative cover present to protect banks and dissipate energy during high flows; and
  - where appropriate, plant communities in the riparian area are an adequate source of woody debris.

N.1.3 Lewistown STANDARD #3: Water quality meets Montana State standards.

This means that surface and groundwater on public lands fully support designated beneficial uses described in the Montana Water Quality Standards. Assessing proper functioning conditions will consider use of historical data.

- As indicated by
  - dissolved oxygen concentration;
  - pH;
  - turbidity;
  - temperature;
  - fecal coliform;
  - sediment;
  - color;
  - toxins; and
  - others: ammonia, barium, boron, chlorides, chromium, cyanide, endosulfan, lindane, nitrates, phenols, phosphorus, sodium, sulfates, etc.

N.1.4 Lewistown STANDARD #4: Air quality meets Montana State standards.

This means that air quality on public lands helps meet the goals set out in the State of Montana Air Quality Implementation Plan. Efforts will be made to limit unnecessary emissions from existing and new point or nonpoint sources.

The BLM management actions or use authorizations do not contribute to air pollution that violates the quantitative or narrative Montana Air Quality Standards or contributes to deterioration of air quality in selected class area.

- As indicated by:

  Section 176(c) Clean Air Act which states that activities of all federal agencies must conform to the intent of the appropriate State Air Quality Implementation Plan and not:
  - cause or contribute to any violations of ambient air quality standards;
  - increase the frequency of any existing violations; and
  - impede the State's progress in meeting their air quality goals.

N.1.5 Lewistown STANDARD #5: Habitats are provided to maintain healthy, productive and diverse populations of native plant and animal species, including special status species (federally threatened, endangered, candidate or Montana species of special concern as defined in BLM Manual 6840, Special Status Species Management).

This means that native plant and animal communities will be maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant lifeforms. Where native communities exist, the conversion to exotic communities after disturbance will be minimized. Management for indigenous vegetation and animals is a priority. Ecological processes including hydrologic cycle, and energy flow, and plant succession are maintained and support healthy biotic populations. Plants are vigorous, biomass production is near potential, and there is a diversity of plant and animal species characteristic of and appropriate to the site. The environment contains components necessary to support viable populations of a sensitive/threatened and endangered species in a given area relative to site potential. Viable populations are wildlife or plant populations that contain an adequate number of reproductive individuals distributed on the landscape to ensure the long-term existence of the species. Assessing proper functioning conditions will consider use of historical data.

- As indicated by:
  - plants and animals are diverse, vigorous and reproducing satisfactorily noxious weeds are absent or insignificant in the overall plant community;
  - spatial distribution of species is suitable to ensure reproductive capability and recovery;
  - a variety of age classes are present;
  - connectivity of habitat or presence of corridors prevents habitat fragmentation;
  - species richness (including plants, animals, insects and microbes) are represented; and
  - plant communities in a variety of successional stages are represented across the landscape.

N.2 GRAZING MANAGEMENT GUIDELINES

Guidelines for management of herbivory (including domestic animals and wildlife) are preferred or advisable approaches to ensure that standards can be met or that significant progress can be made toward meeting the standard(s). Responsible state and Federal wildlife agencies must be involved in this management if standards are to be achieved.

Guidelines are provided to maintain or improve resource conditions in upland and riparian habitats. In both riparian and upland habitats, these guidelines focus on establishing and maintaining proper functioning conditions. The application of these guidelines is dependent on individual management objectives. Desired future conditions in plant communities and streambank characteristics will be determined on a case-by-case basis.

N.2.1 Lewistown GUIDELINE #1

Grazing will be managed in a manner that will maintain the proper balance between soils, water, and vegetation over time. This balance varies with location and management objectives, historic use, and natural fluctuations, but acceptable levels of use can be developed that are compatible with resource objectives.

N.2.2 Lewistown GUIDELINE #2

Manage grazing to maintain watershed vegetation, species richness, and flood plain function. Maintain riparian vegetative cover and structure to trap and hold sediments during run-off events to build streambanks, recharge aquifers, and dissipate flood energy. Grazing management should promote deep-rooted herbaceous vegetation to enhance streambank stability. Where non-native species are contributing to proper functioning conditions, they are acceptable. Where potential for palatable woody shrub species (willows, dogwood, etc.) exists, promote their growth and expansion within riparian zones.

N.2.3 Lewistown GUIDELINE #3

Pastures and allotments will be managed based on their sensitivity and suitability for livestock grazing. Where determinations have not been previously documented, suitability for grazing will be determined by: topography, slope, distance from water, vegetation habitat types, and soil types must be considered when determining grazing suitability. Unsuitable areas should be excluded from grazing.

N.2.4 Lewistown GUIDELINE #4

Management strategies for livestock grazing will ensure that long-term resource capabilities can be sustained. End of season stubble heights, streambank moisture content, and utilization of herbaceous and woody vegetation are critical factors which must be evaluated in any grazing strategy. These considerations are essential to achieving long-term vegetation or stream channel objectives and should be identified on a site-specific basis and used as terms and conditions.

N.2.5 Lewistown GUIDELINE #5

Grazing will be managed to promote desired plants and plant communities of various age classes, based on the rate and physiological conditions of plant growth. Management approaches will be identified on a site-specific basis and implemented through terms and conditions. Caution should be used to avoid early spring grazing use when soils and streambanks are wet and susceptible to compaction and physical damage that occurs with animal trampling. Likewise, late summer and fall treatments in woody shrub communities should be monitored closely to avoid excessive utilization.

N.2.6 Lewistown GUIDELINE #6

The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites.

N.2.7 Lewistown GUIDELINE #7

Locate facilities (e.g., corrals, water developments) away from riparian-wetland areas.

N.2.8 Lewistown GUIDELINE #8

When provided, supplemental salt and minerals should not be placed adjacent to watering locations or in riparian-wetland areas so not to adversely impact streambank stability, riparian vegetation, water quality, or other sensitive areas (i.e., key wildlife wintering areas). Salt and minerals should be placed in upland sites to draw livestock away from watering areas or other sensitive areas and to contribute to more uniform grazing distribution.

N.2.9 Lewistown GUIDELINE #9

Noxious weed control is essential and should include: cooperative agreements, public education, and integrated pest management (mechanical, biological, chemical).

N.2.10 Lewistown GUIDELINE #10

Livestock management should utilize practices such as those referenced by the NRCS published prescribed grazing technical guide to maintain, restore or enhance water quality.

N.2.11 Lewistown GUIDELINE #11

Grazing management should maintain or improve habitat for federally listed threatened, endangered, and sensitive plant and animals.

N.2.12 Lewistown GUIDELINE #12

Grazing management should maintain or promote the physical and biological conditions to sustain native populations and communities.

N.2.13 Lewistown GUIDELINE #13

Grazing management should give priority to native species. Non-native plant species should only be used in those situations where native seed is not readily available in sufficient quantities, where native plant species cannot maintain or achieve the standards, or where non-native plant species provide an alternative for the management and protection of native rangelands.

N.2.14 Lewistown GUIDELINE #14

Allotment monitoring determines how on-going management practices are affecting the rangeland. To do so, the evaluations should be based on: measurable management objectives; permanent and/or repeatable monitoring locations; and short-term and long-term data.

Appendix O

Grazing Allotments

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Appendix O. Grazing Allotments

Allotment #	Allotment Name	Livestock # & Kind		Season of Use	% Public Land	Type of Use	AUMs
4869	# RANCH	17	Cattle	3/1–2/28	100	Custodial	205
14993	54 LIVESTOCK	43	Cattle	5/1–12/31	100	Active	346
20012	79 COULEE	1	Cattle	3/1–2/28	100	Custodial	10
4960	79 TRAIL EAST	305	Cattle	5/10 –10/10	78	Active	1204
9649	ABN RANCH	8	Cattle	4/1–1/1	100	Custodial	66
2665	ADAMS	56	Cattle	6/5–7/7	100	Active	61
25012	AIKENS	36	Cattle	5/1–12/16	55	Active	150
15119	ALAN IND.	6	Cattle	5/1–12/30	100	Custodial	50
14988	ALFALFA ACRES	2	Cattle	3/1–2/28	100	Custodial	21
2645	ALKALI CREEK	30	Cattle	5/1–11/19	33	Active	66
7615	ALKALI FLAT(East)	85	Cattle	5/15–7/14	100	Custodial	40
		60	Cattle	5/1–9/30	100	Custodial	50
		85	Cattle	3/1–2/28	100	Custodial	10
6295	ALKALI FLAT(West)	30	Cattle	6/1–7/30	50	Active	30
2661	ALPINE GULCH G.R.	2	Cattle	5/1–9/30	100	Custodial	8
2525	ALPINE GULCH J.R.	5	Cattle	5/1–9/30	100	Custodial	28
10027	ANDERSON COULEE	86	Cattle	11/1–2/28	59	Active	200
4861	ANDERSON IND.	33	Cattle	3/1–2/28	100	Custodial	299
2508	ANTELOPE	193	Cattle	5/15–10/31	28	Active	302
9668	ANTELOPE COULEE	1	Cattle	3/1–2/28	100	Custodial	10
20037	ARMELLS	121	Cattle	5/15 –10/15	62	Active	362
9783	ARROW CREEK	150	Cattle	3/1–5/30	17	Active	76
		150	Cattle	9/1–2/28	17	Active	152
9761	ARROW CREEK BENCH	13	Cattle	3/1–2/28	100	Custodial	153
2814	ATHERN CREEK	6	Cattle	3/1–2/28	100	Custodial	70
2622	ATHERTON CREEK	2	Cattle	3/1–2/28	100	Custodial	26
9825	B LAZY M	3	Cattle	3/1–2/28	100	Custodial	41
2521	BAKER BAR	1	Cattle	3/1–2/28	100	Custodial	9
		1	Cattle	3/1–5/1	100	Custodial	3
		1	Cattle	9/15–2/28	100	Custodial	7
12806	BALD BUTTE	353	Cattle	6/1–7/7	42	Active	180
		107	Cattle	7/1–11/1	20	Active	87
		1	Cattle	3/1–2/28	100	Custodial	5
2825	BAR DIAMOND	8	Cattle	3/1–2/28	100	Custodial	92
9862	BARBER	1	Cattle	4/1–11/15	100	Custodial	4
15043	BASSETT PLACE	194	Cattle	5/1–10/15	38	Active	407
		181	Cattle	10/15 –10/30	100	Active	95
		80	Cattle	5/1–6/10	100	Active	108
		86	Cattle	6/1–10/15	91	Active	352
9814	BATTLE CREEK	67	Cattle	10/15–11/15	100	Custodial	67
6307	BATTLE CREEK ONA	11	Cattle	5/15–10/31	100	Custodial	62
7605	BEAN LAKE	44	Cattle	7/16–9/30	100	Custodial	112

Allotment #	Allotment Name	Livestock # & Kind		Season of Use	% Public Land	Type of Use	AUMs
14912	BEAR CREEK	23	Cattle	7/1–1/31	100	Custodial	164
		11	Cattle	11/1–2/28	100	Custodial	43
		11	Cattle	3/1–5/31	100	Custodial	33
2817	BEAR CRK HEADWATERS	7	Cattle	3/1–2/28	100	Custodial	73
2810	BEAVER BALL CK	2	Cattle	3/1–2/28	100	Custodial	26
2518	BECKET	19	Cattle	4/15–11/15	100	Active	134
6347	BEDROCK CREEK	1	Cattle	3/1–2/28	100	Custodial	4
9666	BELT CREEK	4	Cattle	3/1–2/28	100	Custodial	48
9710	BELT CREEK	5	Cattle	6/1–9/30	100	Custodial	20
5143	BENCH PASTURE	170	Cattle	4/1–6/10	55	Active	218
		168	Cattle	10/10–11/15	55	Active	112
2813	BENDER CREEK	7	Cattle	3/1–2/28	100	Custodial	78
		2	Cattle	3/1–2/28	100	Custodial	27
2824	BENDER CREEK	2	Cattle	3/1–2/28	100	Custodial	27
4891	BENDER CREEK/WINNETT	166	Cattle	4/16–10/31	32	Active	348
20008	BENES	7	Cattle	3/1–2/28	100	Custodial	88
7601	BERG LEASE	1	Cattle	7/1–9/15	100	Custodial	13
9764	BIG COULEE	2	Cattle	3/1–2/28	100	Custodial	23
9656	BIG COULEE EAST	68	Cattle	6/10–11/20	100	Active	367
2503	BIG CROOKED	175	Cattle	5/1–10/15	45	Active	435
6332	BIG EDDY	3	Cattle	8/1–2/28	100	Custodial	17
2669	BIG JOE	7	Cattle	5/1–9/30	100	Custodial	36
9833	BIG LAKE	1	Cattle	3/1–2/28	100	Custodial	15
9848	BIG SPRING CREEK	4	Cattle	3/1–2/28	100	Custodial	54
9664	BIG VIEW	1	Cattle	3/1–2/28	100	Custodial	11
9755	BIRD COULEE	24	Cattle	6/1–11/1	100	Custodial	119
2680	BLACK BUTTE	13	Cattle	3/1–2/28	100	Custodial	156
9723	BLACK BUTTE	38	Cattle	7/1–11/1	100	Custodial	190
2624	BLACK BUTTE RANCH	8	Cattle	3/1–2/28	100	Custodial	95
9849	BLACK CANYON	7	Cattle	6/1–10/31	100	Custodial	35
6313	BLACK COULEE	3	Cattle	6/1–9/30	100	Custodial	14
3392	BLACK MOUNTAIN	6	Cattle	6/1–8/31	100	Custodial	16
7609	BLACK REEF	171	Cattle	5/15–9/30	100	Custodial	180
9839	BLACK ROCK	7	Cattle	3/1–2/28	100	Custodial	90
6335	BLACKFEET GULCH	3	Horse	7/1–9/1	100	Custodial	6
2811	BLACKTAIL CREEK	1	Cattle	3/1–2/28	100	Custodial	12
9834	BLACKTAIL HILLS	2	Cattle	3/1–2/28	100	Custodial	30
20010	BLIND CANYON AMP	99	Cattle	5/1–10/31	48	Active	287
4896	BLOOD CREEK	188	Cattle	5/15–11/1	78	Active	824
4849	BLOOD CRK–MARTY	547	Cattle	5/1–9/30	59	Active	1623
2668	BOHEMIAN CORNER	4	Cattle	3/1–2/28	100	Custodial	43
2656	BOHEMIAN SOUTH	7	Cattle	3/1–2/28	100	Custodial	81
4866	BOHN EXCHNGE PASTURE	3	Cattle	3/1–2/28	100	Custodial	44
2529	BOX ELDER	155	Cattle	5/1–2/10	69	Active	1006

Allotment #	Allotment Name	Livestock # & Kind	Season of Use	% Public Land	Type of Use	AUMs
4854	BOX ELDER L&L IND.	16 Cattle	3/1–2/28	100	Custodial	194
		1 Cattle	3/1–2/28	100	Custodial	6
2674	BOX ELDER RANCH	5 Cattle	6/1–9/15	100	Custodial	22
		7 Cattle	5/1–11/15	100	Custodial	43
20015	BOYCE C IND.	36 Cattle	5/1–10/31	100	Active	218
4877	BRANDING PASTURE	2 Cattle	3/1–2/28	100	Custodial	26
2639	BRASIER PLACE	16 Cattle	3/1–2/28	100	Custodial	196
15016	BREAKS	169 Cattle	5/15–10/15	80	Active	685
3162	BREEDING PASTURE	5 Cattle	3/1–2/28	100	Custodial	54
2611	BRICKYARD	154 Cattle	4/10–5/16	100	Active	187
		114 Cattle	6/1–9/1	9	Active	31
		250 Cattle	4/1–4/10	76	Custodial	63
		4 Cattle	3/1–1/21	100	Custodial	42
2647	BRIGGS COULEE	29 Cattle	6/1–10/31	20	Active	29
		330 Cattle	6/1–10/31	5	Active	83
20014	BROWN COULEE	66 Cattle	3/1–3/31	52	Active	35
		66 Cattle	9/1–2/28	52	Active	204
9711	BROWNS CANYON	4 Cattle	3/1–2/28	100	Custodial	48
15022	BRUSH CRK–GAVEL	141 Cattle	3/1–5/31	38	Active	162
		136 Cattle	9/1–2/28	38	Active	308
2619	BUCK RIDGE	9 Cattle	5/1–10/1	100	Custodial	47
2519	BUCKLER PLACE	135 Cattle	4/1–6/30	38	Active	153
9790	BUFFALO	3 Cattle	3/1–2/28	100	Custodial	37
20028	BURN SHED COULEE	24 Cattle	4/1–11/30	100	Custodial	195
20018	BURNSIDE	6 Cattle	3/1–2/28	100	Custodial	69
2652	BUTLER COULEE	1 Cattle	5/1–12/1	100	Custodial	6
2599	BUTTON BUTTE	245 Cattle	5/15–9/15	33	Active	330
20098	C & H	3 Cattle	4/1–11/30	100	Custodial	24
15081	C.K. CATTLE	39 Cattle	5/1–12/31	77	Active	242
9750	CACHE CREEK	1 Cattle	5/1–10/31	100	Custodial	8
1166	CALVERT	1 Cattle	7/1–10/15	100	Custodial	8
2657	CARL'S SPRING	16 Cattle	3/1–2/28	100	Custodial	187
10096	CARMICHAEL	6 Cattle	3/1–2/28	100	Custodial	79
3219	CARSON PLACE	1 Cattle	3/1–2/28	100	Custodial	11
9657	CARTER FERRY	4 Cattle	8/1–11/1	100	Custodial	12
9679	CASSIDY PLACE	4 Cattle	5/1–10/31	100	Custodial	26
7613	CASTLE REEF	9 Horse	3/1–6/15	100	Custodial	33
		6 Horse	12/1–2/28	100	Custodial	30
4844	CAT CREEK	183 Cattle	5/1–10/31	43	Active	476
9816	CHERRY CREEK	3 Cattle	5/1–10/31	100	Custodial	18
6303	CHICKEN COULEE	210 Cattle	7/1–9/30	44	Active	279
12501	CHIMNEY CROSSING	256 Yearling Cattle	9/1–12/1	31	Active	472
		1 Cattle	3/1–2/28	100	Custodial	14
5017	CHIMNEY ROCK AMP	301 Cattle	5/1–12/20	51	Active	1181
15095	CHIMNEY ROCK IND.	14 Cattle	5/1–12/15	100	Custodial	105

Allotment #	Allotment Name	Livestock # & Kind	Season of Use	% Public Land	Type of Use	AUMs
5098	CHIMNEY ROCK SOUTH	76 Cattle	5/1–7/1	100	Active	155
2606	CHIPPEWA	5 Cattle	3/1–12/31	100	Custodial	57
		11 Cattle	3/1–2/28	100	Custodial	114
		7 Cattle	3/1–2/28	100	Custodial	77
2623	CHIPPEWA SCHOOL	5 Cattle	3/1–2/28	100	Custodial	59
6304	CHOTEAU MTN	1 Cattle	3/1–2/28	100	Custodial	12
19807	CHURCHILL BUTTE	1 Cattle	4/1–12/30	100	Custodial	6
		6 Cattle	6/1–9/30	100	Custodial	23
2003	CIMRHAKL	23 Cattle	3/1–2/28	100	Custodial	270
4827	CIRCLE BAR COULEE	99 Cattle	4/1–9/30	32	Active	191
9683	COFFEE CREEK	22 Cattle	3/1–2/28	100	Custodial	261
4840	COTTONWOOD CREEK	1 Cattle	3/1–2/28	100	Custodial	9
		84 Cattle	5/1–10/31	61	Active	310
7716	COTTONWOOD CREEK	4 Cattle	5/15–11/15	100	Custodial	22
12804	COUNTY LINE	1 Cattle	3/1–2/28	100	Custodial	16
9831	COWBOY CREEK	3 Cattle	6/1–12/31	100	Custodial	25
19814	COWBOY STEELE CREEK	31 Cattle	6/1–12/31	100	Active	218
6306	COWTRACK	10 Horse	6/15–9/30	100	Custodial	36
9663	COYOTE CREEK	4 Cattle	6/10–12/1	100	Custodial	27
12608	CROFT PLACE	13 Cattle	3/1–2/28	100	Custodial	156
9688	CROOKED CREEK	4 Cattle	6/1–10/31	100	Custodial	19
15014	CROWLEY DAM	6 Cattle	3/1–2/28	100	Custodial	75
		32 Sheep	3/1–2/28	100	Custodial	76
9700	CUT BANK COULEE	14 Cattle	3/1–8/31	100	Active	85
		14 Cattle	12/1–2/28	100	Active	41
20007	CUTBANK CREEK	1 Cattle	3/1–2/28	100	Custodial	12
4879	D. IVERSON	8 Cattle	3/1–2/28	100	Active	96
9675	DAISY DEAN CREEK	1 Cattle	6/1–12/31	100	Custodial	10
9861	DAVIS CREEK	18 Cattle	3/1–2/28	100	Custodial	213
9778	DEADMAN COULEE	128 Cattle	5/15–10831	30	Active	215
7606	DEARBORN RIVER	2 Horse	7/1–2/28	100	Custodial	21
2540	DEEP COULEE	12 Cattle	4/1–9/13	100	Active	65
6310	DEEP CREEK	12 Cattle	3/1–2/28	100	Custodial	144
		27 Cattle	5/15–10/15	100	Custodial	139
9728	DEER CREEK	9 Cattle	4/1–5/31	100	Custodial	18
10053	DEER CREEK	4 Cattle	3/1–2/28	100	Custodial	40
2613	DEGNER PASTURE	23 Cattle	3/1–12/31	100	Custodial	233
		9 Cattle	8/1–12/31	100	Custodial	45
9709	DEVIL CANYON	4 Cattle	3/1–2/28	100	Custodial	48
20082	DEVILS CANYON	45 Cattle	5/20–6/10	26	Active	8
		45 Cattle	10/1–10/31	26	Active	12
2532	DICKSON COULEE	1 Cattle	3/1–2/28	100	Custodial	13
2809	DINGER	14 Cattle	3/1–2/28	100	Custodial	163

Allotment #	Allotment Name	Livestock # & Kind	Season of Use	% Public Land	Type of Use	AUMs
19660	DIVIDE CREEK	42 Cattle	5/15–10/31	100	Custodial	234
		8 Sheep	5/15–10/31	100	Custodial	9
7825	DOG CREEK	13 Cattle	6/1–9/30	100	Custodial	51
20033	DOG CREEK	120 Cattle	6/25–10/5	49	Active	199
4863	DOMAN–SCHULTZ	24 Cattle	6/1–9/22	66	Active	59
		79 Cattle	6/1–9/22	28	Active	83
9693	DOSTAL	46 Cattle	3/1–2/28	33	Active	182
		1 Cattle	3/1–2/28	100	Custodial	8
4967	DOVETAIL AMP	72 Yearling Cattle	5/16–9/30	100	Active	327
15013	DRAG CREEK	251 Cattle	5/1–10/16	76	Active	1060
6294	DRY BEAVER CREEK	10 Cattle	3/1–2/28	100	Custodial	50
5057	DRY BLOOD	70 Cattle	3/1–2/28	71	Active	596
2530	DRY FORK CREEK	10 Cattle	3/1–2/28	100	Custodial	123
9743	DRY HILLS	51 Cattle	6/1–8/15	37	Custodial	47
		40 Cattle	6/1–8/15	75	Custodial	75
		2 Cattle	3/15–6/15	100	Custodial	6
4868	DUCK CREEK	41 Cattle	4/1–12/31	56	Active	208
15089	DUNN RIDGE	96 Cattle	6/1–9/30	67	Active	258
2560	DUNN RIDGE COMMON	11 Cattle	3/1–2/28	100	Custodial	132
		11 Cattle	3/1–2/28	100	Custodial	134
6316	E FARMERS RESEVOIR	2 Cattle	6/1–12/31	100	Custodial	13
6322	E. BIRCH CREEK	9 Cattle	3/1–2/28	100	Custodial	102
15061	EAGER HOME RANCH	23 Cattle	3/1–2/28	100	Custodial	168
9856	EAGLE	3 Cattle	3/1–2/28	100	Custodial	37
19655	EAGLE BUTTE	6 Cattle	8/15–11/1	100	Custodial	19
9672	EAGLE CREEK	16 Cattle	6/1–9/15	100	Custodial	57
20029	EAGLE LAND	4 Cattle	3/1–2/28	100	Custodial	48
9835	EAR MOUNTAIN INDIV.	15 Horse	7/1–9/30	100	Active	45
15101	EAST ANTELOPE	350 Cattle	5/1–11/2	37	Active	792
		7 Cattle	3/1–2/28	100	Custodial	86
		8 Cattle	3/1–2/28	100	Custodial	100
10023	EAST CHRISTINA	75 Cattle	5/8–9/30	75	Active	270
2631	EAST FORK ARMELLS CREEK	9 Cattle	3/1–2/28	100	Custodial	105
20001	EAST FORK BEAVER CREEK	1 Cattle	3/1–2/28	100	Custodial	12
2681	EAST FORK FORDS CREEK	20 Cattle	6/16–9/15	20	Custodial	10
2001	EAST INDIAN BUTTE COMMON	71 Cattle	5/1–6/15	11	Active	12
		71 Cattle	8/16–10/31	11	Active	20
		232 Cattle	7/6–10/31	54	Active	486
		108 Cattle	5/15–10/31	47	Active	284
		334 Cattle	6/16–10/20	46	Active	641
		112 Cattle	5/15–11/15	10	Active	68
		123 Cattle	5/16–11/15	14	Active	104
		25 Cattle	5/15–12/15	79	Active	140

Allotment #	Allotment Name	Livestock # & Kind		Season of Use	% Public Land	Type of Use	AUMs
2001 *(continued)*	EAST INDIAN BUTTE COMMON *(continued)*	65	Cattle	4/16–6/15	10	Active	13
		30	Cattle	8/15–10/31	10	Active	8
		121	Cattle	11/1–11/30	10	Active	12
		1	Cattle	5/16–11/15	100	EOU*	6
		88	Cattle	5/16–11/15	66	Active	351
		45	Cattle	6/1–10/30	55	Active	124
		13	Cattle	6/1–11/2	3	Active	2
		45	Cattle	5/16–11/15	38	Active	103
		82	Cattle	5/16–11/15	92	Active	456
		9	Cattle	5/16–10/15	100	EOU	45
		6	Cattle	5/16–10/15	100	EOU	30
		296	Cattle	6/1–11/1	53	Active	794
		6	Cattle	6/1–11/1	100	EOU	30
		60	Cattle	5/16–10/15	73	Active	220
7611	EAST LOCO CR.	148	Cattle	7/1–9/15	2	Active	7
920	EAST PASTURE	4	Cattle	3/1–2/28	100	Active	48
19844	EAST PEAK	6	Cattle	6/1–10/1	100	Custodial	25
2670	EAST ROY	14	Cattle	3/1–5/15	100	Active	35
		14	Cattle	10/10–2/28	100	Active	65
		4	Cattle	5/15–10/31	100	Custodial	24
15047	EAST WINNETT	3	Cattle	4/1–11/15	100	Custodial	21
2659	ELDER	3	Cattle	3/1–2/28	100	Custodial	36
2830	ELK CREEK	17	Cattle	3/1–2/28	100	Custodial	206
9800	ELK CREEK	7	Cattle	6/1–9/30	100	Custodial	30
4865	ELK CREEK BENCH	2	Cattle	3/1–2/28	100	Custodial	28
		35	Cattle	4/1–11/15	65	Active	171
		60	Cattle	7/25–10/20	100	Active	174
		133	Cattle	5/15–9/30	75	Active	456
12610	ELK PEAK	64	Cattle	6/1–9/30	8	Active	21
20030	ERIE	85	Cattle	6/1–9/3	55	Active	146
9797	EVANS BEND	5	Cattle	3/1–4/1	100	Custodial	5
		5	Cattle	9/15–2/28	100	Custodial	27
		8	Cattle	3/1–2/28	100	Custodial	99
4846	FAIL PLACE	4	Cattle	3/1–2/28	100	Custodial	45
25000	FCC IND. A	5	Cattle	6/1–9/30	100	Custodial	63
2005	FERGUS TRIANGLE	5	Cattle	3/1–2/28	100	Custodial	56
		66	Cattle	5/16–10/15	40	Active	133
		5	Cattle	3/1–2/28	100	Custodial	56
		66	Cattle	5/16–10/15	40	Active	133
2000	FINK EXCHANGE OF USE	28	Cattle	6/1–7/15	100	EOU	41
2699	FINKBEINER EXCH. OF USE	3	Cattle	3/1–2/28	100	EOU	36
2642	FISHER	10	Cattle	3/1–2/28	100	Custodial	116
9826	FLAT CREEK	32	Cattle	8/1–10/15	100	Active	80
2640	FLAT MOUNTAIN	1	Cattle	3/1–2/28	100	Custodial	10

Allotment #	Allotment Name	Livestock # & Kind		Season of Use	% Public Land	Type of Use	AUMs
2660	FLAT MOUNTAIN EAST	1	Cattle	3/1–2/28	100	Custodial	4
15078	FLATWILLOW	205	Cattle	5/1–11/27	42	Active	597
		1	Cattle	3/1–2/28	100	Custodial	12
9684	FLATWILLOW CLNY	14	Cattle	3/1–2/28	100	Custodial	167
7614	FLORENCE CANAL	3	Cattle	5/1–10/31	100	Custodial	16
9738	FLYING O	1	Cattle	3/1–2/28	100	Custodial	7
7831	FORD COULEE	3	Cattle	6/1–11/15	100	Custodial	30
15045	FORD CREEK	179	Cattle	6/1–10/31	40	Active	360
2651	FOREST GROVE	4	Cattle	3/1–2/28	100	Custodial	45
12700	FORGY COMMON	23	Cattle	5/16–10/15	100	Custodial	115
		20	Cattle	5/16–10/15	100	Custodial	100
		7	Cattle	5/16–9/15	100	Active	28
		26	Cattle	5/16–10/15	100	Custodial	130
2664	FORTY–ONE	1	Cattle	5/1–10/1	100	Custodial	8
6317	FREEZEOUT WEST	8	Cattle	6/1–9/30	100	Custodial	30
12625	FRENCH	5	Cattle	3/1–2/28	100	Custodial	60
2026	FRITZ HARRI	5	Cattle	3/1–2/28	100	Active	60
		1	Cattle	3/1–2/28	100	Custodial	15
20011	GALLATIN	14	Cattle	6/1–9/15	100	Active	49
2516	GALLOWAY	4	Cattle	3/1–2/28	100	Custodial	46
5113	GARDNER IND. C,F,H,I	44	Cattle	3/1–2/28	100	Custodial	477
15058	GARDNER IND. E	79	Cattle	5/1–12/31	43	Active	274
4860	GARDNER–SOLF AREA	21	Cattle	5/1–6/30	59	Active	25
		22	Cattle	8/1–9/30	59	Active	26
		32	Cattle	5/1–6/30	100	Active	64
		32	Cattle	8/1–9/30	100	Active	64
2533	GIBBS COULEE	4	Cattle	3/1–2/28	100	Custodial	48
15103	GILSKEY	56	Cattle	5/16–10/3	69	Active	215
		36	Cattle	5/16–10/3	48	Active	96
2620	GILTEDGE	64	Cattle	6/1–9/1	100	Custodial	271
		5	Cattle	6/1–9/1	100	Custodial	15
9671	GIPSY CREEK	16	Cattle	7/1–10/20	100	Custodial	59
4990	GORMAN COULEE	90	Cattle	5/15–11/15	54	Active	296
		1	Cattle	5/15–11/15	100	Custodial	2
		1	Cattle	3/1–2/28	100	Custodial	3
		90	Cattle	5/15–11/15	2	Active	11
		55	Cattle	5/15–11/15	35	Active	117
		1	Cattle	3/1–2/28	100	Custodial	4
9774	GRANARY	4	Cattle	3/1–2/28	100	Custodial	48
2673	GRASS RANGE EAST	4	Cattle	3/1–2/28	100	Custodial	39
2626	GRASS RANGE NORTH	38	Cattle	3/1–2/28	85	Custodial	88
3203	GRASS RANGE SOUTH	40	Cattle	5/4–7/9	100	Active	88
2025	GREATER DRY ARMELLS	36	Cattle	5/1–10/15	100	EOU	199
		44	Cattle	5/1–10/15	100	EOU	243
		49	Cattle	5/1–10/31	35	Active	104
		30	Cattle	5/15–10/31	100	Active	168

Allotment #	Allotment Name	Livestock # & Kind		Season of Use	% Public Land	Type of Use	AUMs
2025 *(continued)*	GREATER DRY ARMELLS *(continued)*	2	Cattle	5/15–10/31	100	Active	11
		1	Cattle	8/1–10/31	100	Active	3
		12	Cattle	5/12–10/31	100	Active	67
		96	Cattle	5/15–10/31	100	Active	537
		1	Cattle	7/1–10/31	100	Active	4
		1	Cattle	3/1–2/28	100	Custodial	7
		121	Cattle	6/1–10/1	82	Active	401
20049	GREEN POLE	1	Cattle	6/1–10/31	100	Custodial	5
6308	GREEN TIMBER GULCH	50	Cattle	6/15–10/15	18	Active	36
20034	GREEN–ROYCE	5	Cattle	3/1–2/28	100	Custodial	68
4841	HAILEY COULEE	368	Cattle	5/15–10/15	80	Active	1491
15069	HALE RANCH	1	Cattle	3/1–2/28	100	Custodial	10
		3	Cattle	3/1–2/28	100	Custodial	37
		40	Cattle	2/15–2/28	43	Active	8
		43	Cattle	3/1–11/15	43	Active	158
		100	Cattle	6/1–12/31	61	Active	429
		70	Cattle	6/1–12/31	71	Active	350
		14	Cattle	3/1–11/10	100	Active	117
2827	HALF MOON	8	Cattle	3/1–2/28	100	Custodial	91
9793	HANSEN COULEE	2	Cattle	3/1–2/28	100	Custodial	20
14904	HANSON DAM	1	Cattle	3/1–2/28	100	Custodial	16
6336	HARDY	11	Cattle	5/1–9/30	100	Active	55
6334	HARDY CREEK	10	Cattle	6/1–10/31	100	Custodial	51
19730	HARLOW	21	Cattle	6/1–8/31	100	Custodial	64
10038	HARLOW RANCH	2	Cattle	6/1–11/30	100	Custodial	12
4874	HARRIS	1	Cattle	3/1–2/28	100	Custodial	19
		3	Cattle	3/1–2/28	100	Custodial	36
		2	Cattle	3/1–2/28	100	Custodial	26
		61	Cattle	7/1–2/28	74	Active	361
15138	HAWKINS PASTURE	140	Cattle	5/1–7/15	37	Active	129
2505	HAY COULEE	310	Cattle	5/15–10/15	52	Active	816
		1	Cattle	5/15–6/15	100	Custodial	1
2632	HEBLE	4	Cattle	3/1–2/28	100	Custodial	53
4956	HEDMAN	1	Cattle	3/1–2/28	100	Custodial	12
2633	HEIL	87	Cattle	4/25–7/1	100	Active	194
		1	Cattle	3/1–2/28	100	Custodial	6
9763	HIGHWOOD CREEK	1	Cattle	3/1–2/28	100	Custodial	7
15049	HILL PASTURE	15	Cattle	5/15–9/25	100	Custodial	68
4876	HILL SOUTH WINNETT	9	Cattle	3/1–2/28	100	Custodial	105
9735	HOLLIDAY L&L IND	1	Cattle	3/1–2/28	100	Custodial	13
4859	HOME PLACE	1	Cattle	3/1–2/28	100	Custodial	7
6324	HOMESITE	1	Horse	7/1–8/31	100	Custodial	6
		1	Horse	3/1–6/30	100	Custodial	1
		1	Horse	9/1–2/28	100	Custodial	2
2634	HORSETHIEF COULEE	6	Cattle	3/1–2/28	100	Custodial	61
2629	HORSETHIEF RIDGE	1	Cattle	3/1–2/28	100	Custodial	1

Allotment #	Allotment Name	Livestock # & Kind		Season of Use	% Public Land	Type of Use	AUMs
9747	HOUND	7	Cattle	6/1–10/31	100	Custodial	35
2539	HUBERT COULEE	1	Cattle	3/1–2/28	100	Custodial	8
4831	HUGHES COULEE	38	Cattle	11/1–2/28	8	Active	12
		38	Cattle	3/1–4/1	8	Active	3
		99	Cattle	5/15–9/30	22	Active	100
15110	IDHE B	6	Cattle	3/1–6/30	100	Active	24
		8	Cattle	8/1–2/28	100	Active	56
4852	IDHE RANCH	190	Cattle	5/15–10/15	63	Active	606
14955	IND. A	104	Yearling Cattle	5/15–9/15	53	Active	225
4965	IND. B	4	Yearling Cattle	3/1–2/28	100	Custodial	57
15015	IND. F CUST.	12	Cattle	3/1–2/28	100	Custodial	146
2008	INDIAN BUTTE	1	Cattle	3/1–2/28	100	Custodial	15
7617	INDIAN CREEK	6	Cattle	7/1–11/30	100	Custodial	37
7659	INDIAN HEAD ROCK	2	Horse	7/1–8/31	100	Custodial	4
4957	IVERSON	2	Cattle	3/1–2/28	100	Custodial	25
		443	Cattle	5/16–11/15	52	Active	1394
2507	IVERSON IND.	118	Cattle	5/16–11/15	48	Active	343
15151	IVERSON YELLOWWATER	105	Cattle	5/30–10/20	95	Active	472
		78	Cattle	5/30–10/20	89	Active	329
20032	JACKSON COULEE	3	Cattle	4/1–11/30	100	Active	24
2010	JACKSON HOME RANCH	9	Cattle	5/15–11/30	100	Custodial	56
14969	JACKSON PLACE	37	Cattle	5/1–10/31	95	Active	213
		55	Cattle	5/1–10/31	85	Active	283
		57	Cattle	5/1–10/31	63	Active	217
		70	Cattle	5/1–10/31	74	Active	313
		55	Cattle	5/1–10/31	38	Active	126
9787	JIGGS FLAT	4	Cattle	3/1–2/28	100	Custodial	47
20005	JONES CONE	5	Cattle	3/1–2/28	100	Custodial	65
15105	JORDAN EAST PAST.	6	Cattle	3/1–2/28	100	Custodial	147
2012	JORDAN HOME RANCH	12	Cattle	3/1–2/28	100	Custodial	147
10042	JUDITH MTN. COMMON	15	Cattle	6/1–10/31	26	Active	20
		31	Cattle	6/1–10/31	12	Active	11
		45	Cattle	6/1–10/31	10	Active	23
2627	JUDITH PEAK	4	Cattle	3/1–2/28	100	Custodial	49
15125	JUDITH RIVER	35	Cattle	3/1–2/28	100	Active	420
20051	JUDITH RIVER	37	Cattle	6/1–11/15	100	Active	204
20022	KATZMAN	1	Cattle	3/1–2/28	100	Custodial	10
2815	KAUFMAN	4	Cattle	3/1–2/28	100	Custodial	48
12702	KELLNER RESERVOIR	1	Cattle	3/1–4/30	100	Custodial	5
		1	Cattle	11/1–2/28	100	Custodial	6
4835	KELLY BOTTOM	3	Cattle	3/1–2/28	100	Custodial	36
9676	KENDLE PLACE	1	Cattle	3/1–2/28	100	Custodial	3

Allotment #	Allotment Name	Livestock # & Kind	Season of Use	% Public Land	Type of Use	AUMs
4884	KING	638 Cattle	5/20–9/22	34	Active	899
		40 Cattle	6/15–8/31	34	Active	35
		438 Cattle	9/23–12/6	34	Active	367
5054	KING 7–HEIFER PAST.	70 Cattle	6/11–11/9	34	Active	119
15055	KING WINTER PAST.	6 Cattle	3/1–7/31	100	Active	30
		6 Cattle	9/1–2/28	100	Custodial	38
20044	KINKELAAR	8 Cattle	3/1–2/28	100	Custodial	96
2041	KOMAREK	5 Cattle	3/1–2/28	100	Custodial	55
2016	KOMAREK PLACE	8 Cattle	3/1–2/28	100	Custodial	102
2015	KOMAREK RANCH	2 Cattle	3/1–2/28	100	Custodial	19
4885	KRUGER	3 Cattle	3/1–2/28	100	Custodial	32
15145	LAMBERT BENCH	42 Cattle	5/1–10/15	74	Active	172
9852	LANDER CROSSING	2 Cattle	3/1–2/28	100	Custodial	23
9759	LEACH PLACE	5 Cattle	4/1–12/1	100	Custodial	39
2818	LEHFELDT IND.	3 Cattle	3/1–2/28	100	Custodial	35
9782	LEPLEYS CREEK	4 Cattle	3/1–2/28	100	Active	48
2643	LINDQUIST	7 Cattle	3/1–2/28	100	Custodial	86
20052	LINSE	8 Cattle	3/1–2/28	100	Custodial	99
5018	LITTLE BEAR	97 Cattle	5/1–10/31	30	Active	176
2609	LITTLE BOX ELDER	85 Cattle	9/1–10/18	100	Active	134
		2 Cattle	3/1–2/28	100	Custodial	24
12601	LITTLE DAM	13 Cattle	3/1–2/28	100	Active	156
		1 Cattle	3/1–5/1	100	Active	2
		100 Cattle	5/15–6/15	13	Active	14
		200 Cattle	6/16–7/31	13	Active	39
9708	LITTLE ELK CREEK	7 Cattle	6/1–10/31	100	Custodial	30
9732	LITTLE SULPHUR CREEK	1 Cattle	3/1–2/28	100	Custodial	16
4839	LONG COULEE	119 Cattle	5/1–11/30	63	Active	527
		5 Cattle	3/1–2/28	100	Custodial	63
2649	LOOKOUT PEAK	2 Cattle	3/1–2/28	100	Active	24
9725	LOST LAKE RANCH	1 Cattle	5/1–11/1	100	Custodial	11
2021	LOWER ARMELLS	66 Cattle	6/1–12/1	82	Active	327
		10 Cattle	6/1–12/1	100	EOU	60
11190	LOWER BIRD CREEK	20 Cattle	3/1–2/28	100	Custodial	7
4870	LOWER BLOOD CREEK	140 Cattle	5/1–12/31	79	Active	891
2040	LOWER FARGO COULEE	40 Cattle	11/15–2/28	100	Active	139
		53 Cattle	5/1–6/30	26	Active	28
6331	LOWER FLAT CREEK	90 Cattle	6/1–9/30	17	Active	61
9836	LOWER SAND COULEE	18 Cattle	6/15–9/15	100	Custodial	55
3137	LOWER SNOOSE CREEK	67 Cattle	5/1–10/15	57	Active	211
9673	LOWER SPRING CR AMP	60 Cattle	6/21–10/15	2	Active	5
2014	LUKENS FLAT	11 Cattle	3/1–2/28	100	Custodial	136
20054	LUTHER	3 Cattle	3/1–2/28	100	Custodial	36
9860	M LAZY M	1 Cattle	11/1–2/28	100	Custodial	3
		1 Cattle	3/1–6/1	100	Custodial	6
823	MAGINNIS	4 Cattle	4/1–11/15	100	Custodial	31

Allotment #	Allotment Name	Livestock # & Kind	Season of Use	% Public Land	Type of Use	AUMs
985	MAGINNIS CREEK	5 Cattle	5/1–12/30	100	Custodial	41
2603	MAGINNIS MTN	79 Cattle	7/1–9/15	24	Active	48
2616	MAIDENHEAD	9 Cattle	3/1–2/28	100	Custodial	102
4842	MANUEL PLACE	1 Cattle	3/1–12/31	100	Custodial	13
		197 Cattle	7/15–9/15	57	Active	233
		209 Cattle	5/1–5/31	63	Active	134
		2 Cattle	3/1–12/31	100	Custodial	24
2816	MANY SPRINGS	4 Cattle	3/1–2/28	100	Custodial	41
4887	MARKS IND.	74 Cattle	6/1–10/15	80	Active	298
4894	MARSH HAWK	199 Cattle	5/20–9/21	60	Active	491
		279 Cattle	10/13–12/23	34	Active	225
		279 Cattle	9/23–10/12	15	Active	28
9859	MARTIN CREEK	1 Cattle	3/1–2/28	100	Custodial	16
2646	MARUSKA	30 Cattle	6/16–10/22	100	Active	127
		3 Cattle	3/1–2/28	100	Custodial	36
		3 Cattle	3/1–2/28	100	Custodial	36
9751	MARY'S KNOLL	1 Cattle	3/1–2/28	100	Custodial	8
20069	MASON CANYON	100 Cattle	6/1–9/30	22	Active	88
2017	MATHISON PLACE	5 Cattle	3/1–2/28	100	Custodial	60
20045	MATTUSCHEK	1 Cattle	3/1–2/28	100	Custodial	14
		233 Cattle	6/1 –9/9	59	Active	456
		173 Cattle	9/10–10/31	59	Active	174
		60 Cattle	5/6–6/5	82	Active	50
		140 Cattle	9/10–10/31	82	Active	196
2027	MAULAND/HANSON	26 Cattle	6/1–11/1	97	Active	128
		16 Cattle	6/1–11/1	64	Active	52
15009	MAXWELL RANCH	1 Cattle	3/1–2/28	100	Custodial	14
2018	MAYBERRY PLACE	135 Cattle	5/1–11/1	48	Active	394
2812	MCCARTNEY CREEK	1 Cattle	3/1–2/28	100	Custodial	9
		1 Cattle	3/1–2/28	100	Custodial	9
4902	MCDONALD CREEK	8 Cattle	3/1–2/28	100	Custodial	98
2648	MEADORS BENCH	4 Cattle	3/1–2/28	100	Custodial	41
5141	MEADOW PASTURE	9 Cattle	3/1–2/28	100	Custodial	15
10085	MEES CABIN TRAIL	85 Cattle	6/15–9/15	62	Active	161
		35 Cattle	6/15–9/15	62	Active	66
9703	MELTON COULEE	13 Cattle	3/1–2/28	100	Custodial	157
20057	MENDEL	13 Cattle	5/15–12/28	100	Custodial	98
9828	MERRILL CREEK	7 Cattle	6/1–10/31	100	Custodial	36
9776	MERRIMAC	10 Cattle	5/1–10/31	100	Active	60
14968	MEYERS	3 Cattle	3/1–2/28	100	Active	36
		4 Cattle	3/1–2/28	100	Active	48
9704	MIDDLE CREEK	28 Cattle	6/1–9/29	100	Custodial	111
7604	MIDDLE FORK	5 Cattle	5/1–10/31	100	Custodial	16
7603	MIDDLE FORK DEARBORN	12 Cattle	6/15–9/15	100	Custodial	35
10060	MILBURN PLACE	5 Cattle	4/1–11/30	100	Custodial	42

Allotment #	Allotment Name	Livestock # & Kind		Season of Use	% Public Land	Type of Use	AUMs
19652	MILLER PLACE	1	Cattle	3/1–2/28	100	Custodial	5
9677	MILWAUKEE	4	Cattle	3/1–2/28	100	Custodial	46
9715	MING COULEE	7	Cattle	7/1–8/31	100	Custodial	15
9722	MONARCH	1	Cattle	5/20–12/31	100	Custodial	5
2019	MONEY ACRES	9	Cattle	4/1–11/30	100	Custodial	71
9811	MORROW PLACE	3	Cattle	3/1–2/28	100	Custodial	32
25007	MOSBY ROAD	1	Cattle	3/1–2/28	100	Custodial	18
2679	MOULTON	11	Cattle	4/1–6/15	100	Custodial	28
		11	Cattle	10/1–2/28	100	Custodial	55
9662	MUD SPRING COULEE	8	Cattle	3/1–2/28	100	Custodial	97
2823	MULEY COULEE	7	Cattle	3/1–2/28	100	Custodial	75
2653	MUNSON	8	Cattle	3/1–2/28	100	Custodial	91
4836	MURPHY COULEE	2	Cattle	3/1–2/28	100	Custodial	16
20019	MURPHY PLACE	8	Cattle	3/1–2/28	100	Custodial	98
15010	MUSSELSHELL	4	Cattle	3/1–2/28	100	Active	48
4959	MUSSELSHELL RIVER	218	Cattle	5/1–11/1	70	Active	928
15025	MUSSELSHELL TRAIL	493	Yearling Cattle	5/1–9/30	69	Active	1488
		112	Yearling Cattle	5/1–6/15	100	Active	169
		115	Yearling Cattle	5/1–9/30	100	Active	113
		28	Yearling Cattle	5/1–9/30	100	Active	141
		2	Yearling Cattle	5/1–9/30	100	Active	10
2821	N BAR	23	Cattle	3/1–2/28	100	Custodial	274
		78	Cattle	6/1–9/30	100	Active	313
9674	N FORK MUSSELSHELL	11	Cattle	3/1–2/28	100	Custodial	133
6338	N. ANTELOPE MTN.	1	Cattle	5/1–9/30	100	Custodial	8
9665	NEBEL COULEE	10	Cattle	6/1–10/31	100	Custodial	56
		2	Cattle	6/1–10/31	100	Custodial	11
4890	NEBRASKA PLACE	89	Cattle	3/1–2/28	100	Custodial	1067
		23	Cattle	9/1–2/28	100	Custodial	135
2678	NINE MILE COMMON	1	Cattle	3/1–2/28	100	Custodial	8
15037	NINE MILE COMMON	61	Cattle	5/16–11/15	41	Active	151
		65	Cattle	5/16–11/15	29	Active	114
2671	NO GO	8	Cattle	3/1–2/28	100	Custodial	87
20063	NORMAN	14	Cattle	3/1–2/28	100	Custodial	138
9788	NORMAN PLACE	1	Cattle	3/1–2/28	100	Custodial	17
4850	NORTH BOX ELDER	53	Cattle	6/15–10/30	63	Active	151
		97	Cattle	5/5–6/15	44	Active	59
		62	Cattle	6/15–10/30	38	Active	107
2506	NORTH CROOKED CREEK	15	Cattle	3/1–2/28	100	Custodial	175
		554	Cattle	5/15–10/15	46	Active	1290
		110	Cattle	6/1–10/15	47	Active	233

Allotment #	Allotment Name	Livestock # & Kind	Season of Use	% Public Land	Type of Use	AUMs
20056	NORTH FK WARM SPRING	2 Cattle	3/1–2/28	100	Active	24
15146	NORTH FLATWILLOW	112 Cattle	6/1–9/30	9	Active	40
9726	NORTH FORK SHEEP CR	40 Cattle	6/1–9/30	100	Custodial	158
15135	NORTH FORTY	1 Cattle	3/1–2/28	100	Custodial	8
15024	NORTH HIGHWAY	266 Cattle	6/1–9/30	88	Active	939
12612	NORTH MCDONALD	4 Cattle	3/1–2/28	100	Custodial	45
10036	NORTH MOCCASIN	65 Cattle	7/1–8/31	55	Active	73
		25 Cattle	7/1–8/31	100	Custodial	50
2675	NORTH OSWICK	11 Cattle	3/1–2/28	100	Custodial	130
4824	NORTH WILLOW CREEK	123 Cattle	10/5–2/28	24	Active	143
		23 Cattle	3/1–5/1	27	Active	13
		43 Cattle	5/1–11/5	70	Active	187
		18 Cattle	11/1–2/28	54	Active	38
		18 Cattle	3/1–5/1	54	Active	20
4900	OLD WINNETT ROAD	22 Cattle	3/1–2/28	100	Custodial	264
		3 Cattle	3/1–2/28	100	Custodial	42
		7 Cattle	3/1–2/28	100	Custodial	89
		5 Cattle	3/1–2/28	100	Custodial	67
5099	OLSEN	8 Cattle	6/1–2/28	100	Custodial	91
20087	OLSON	7 Cattle	3/1–2/28	100	Custodial	84
2662	O–N	5 Cattle	3/1–2/28	100	Custodial	57
9798	P N	1 Cattle	3/1–2/28	100	Custodial	9
4878	P.D. PASTURE	4 Cattle	3/1–2/28	100	Custodial	48
9795	PAGIL GULCH	8 Cattle	3/1–2/28	100	Custodial	90
9777	PASS COULEE	40 Cattle	7/1–11/1	63	Active	103
		4 Horse	7/1–11/1	63	Active	10
7618	PAUL CREEK	2 Horse	6/1–9/30	100	Custodial	8
14911	PEARCE	10 Sheep	3/1–2/28	100	Active	24
		2 Cattle	3/1–2/28	100	Active	24
20072	PETRANEK	16 Cattle	3/1–2/28	100	Active	192
15120	PETROLEUM IND.	12 Cattle	3/1–2/28	100	Custodial	174
4901	PETROLIA BENCH RANCH	61 Cattle	5/1–10/7	47	Active	151
		3 Cattle	6/1–2/28	100	Custodial	25
9796	PHILLIPS SCHOOL	1 Cattle	3/1–6/1	100	Custodial	3
		1 Cattle	9/1–2/28	100	Custodial	5
5161	PIKE CREEK	134 Cattle	6/1–11/1	64	Active	434
2531	PIPER	1 Cattle	3/1–2/28	100	Custodial	10
6311	PISHKUN	2 Cattle	3/1–2/28	100	Custodial	27
2514	PITMAN RANCH	16 Cattle	3/1–2/28	100	Custodial	215
20074	POPNOE	4 Cattle	3/1–2/28	100	Custodial	44
6329	PORTAGE	2 Cattle	5/1–10/31	100	Custodial	14
9754	POSTHILL CREEK	1 Cattle	6/16–10/15	100	Custodial	4
2831	POTTER CREEK	4 Cattle	3/1–2/28	100	Custodial	32

Allotment #	Allotment Name	Livestock # & Kind	Season of Use	% Public Land	Type of Use	AUMs
9753	POWNAL	16 Cattle	11/1–2/28	100	Active	63
		16 Cattle	3/1–5/24	100	Active	45
		1 Cattle	3/1–2/28	100	Custodial	7
2826	PRONGHORN RANCH	13 Cattle	3/1–2/28	100	Custodial	145
2527	PULP 40	1 Cattle	3/1–2/28	100	Custodial	2
20083	PYRAMID PEAK	60 Cattle	5/1–9/30	24	Active	72
15118	RAILROAD	13 Cattle	5/1–12/31	100	Custodial	104
12602	RATTLESNAKE BUTTE	1 Horse	3/1–2/28	100	Custodial	12
		4 Cattle	3/1–2/28	100	Custodial	48
		38 Cattle	6/1–8/31	100	Active	115
9714	RATTLESNAKE COULEE	14 Cattle	3/1–2/28	100	Custodial	172
20071	REED COULEE	6 Cattle	3/1–2/28	100	Custodial	67
		105 Cattle	5/1–10/30	80	Active	508
		11 Cattle	5/1–10/30	100	EOU	67
10041	RESERVATION BENCH	24 Cattle	5/1–11/30	100	Custodial	169
9801	RHYNARD IND	2 Cattle	3/1–2/28	100	Custodial	20
2030	RINDAL COMMON	138 Cattle	6/1–9/15	18	Active	87
		41 Cattle	6/1–10/15	24	Active	44
9802	RITLAND	1 Cattle	3/1–2/28	100	Custodial	7
6325	RIVER BLM	1 Cattle	3/1–2/28	100	Custodial	11
4882	RIVER PASTURE	2 Cattle	3/1–2/28	100	Custodial	19
15115	RIVER RANCH	198 Cattle	5/1 / 10/31	57	Active	683
9691	RIVER TRACT	4 Cattle	3/1–5/31	100	Custodial	12
		4 Cattle	9/15–12/15	100	Custodial	13
15001	ROAD JUNCTION	1 Cattle	3/1–2/28	100	Custodial	4
		5 Sheep	5/1–11/30	100	Custodial	4
7607	ROOST HILL	3 Cattle	6/1–10/1	100	Custodial	14
2672	ROSE CANYON	10 Cattle	3/1–2/28	100	Custodial	119
20100	ROSE CREEK	22 Cattle	4/1–11/30	100	Active	176
2615	ROSS PASS	5 Cattle	3/1–2/28	100	Custodial	62
2520	ROUNS PLACE	1 Cattle	3/1–2/28	100	Custodial	4
9767	ROWE COULEE	7 Cattle	5/1–10/30	100	Custodial	40
		1 Cattle	3/1–2/28	100	Custodial	18
15140	ROZIE PASTURE	57 Cattle	4/1–6/15	100	Custodial	142
		57 Cattle	9/15–12/31	100	Custodial	202
20068	RUBY GULCH	1 Cattle	3/1–2/28	100	Custodial	6
9775	RUNNING WOLF CREEK	14 Cattle	6/1–10/15	100	Custodial	66
6330	RYAN COULEE	17 Cattle	12/1–2/28	100	Custodial	51
9745	SAGE CREEK	2 Cattle	10/1–2/28	100	Custodial	12
4856	SAGE CREEK AMP	78 Cattle	5/10–10/24	74	Active	319
		2 Cattle	5/10–10/24	100	Custodial	10
4880	SAGE HEN	55 Cattle	5/20–10/18	86	Active	236
6342	SALMOND RANCH CO.	267 Cattle	5/15–10/15	7	Active	95
14992	SALT SAGE	1 Cattle	3/1–2/28	100	Custodial	3
9820	SAND COULEE	1 Cattle	6/1–10/31	100	Custodial	3

Allotment #	Allotment Name	Livestock # & Kind	Season of Use	% Public Land	Type of Use	AUMs
2032	SATTERFIELD PLACE	4 Cattle	3/1–2/28	100	Custodial	42
		180 Cattle	6/1–10/16	29	Active	237
9817	SAURE PLACE	1 Cattle	4/1–12/28	100	Custodial	11
2024	SAWMILL COULEE	182 Cattle	6/1–10/31	62	Active	568
2666	SCHULZ	11 Cattle	3/1–2/28	100	Custodial	135
15048	SCHUSTER & WHITE	350 Cattle	5/15–9/25	39	Active	601
		465 Cattle	5/15–9/25	71	Active	1454
10092	SENNETT CANYON	1 Cattle	3/1–2/28	100	Custodial	5
20079	SEVENTY NINE COULEE	12 Cattle	3/1–2/28	100	Custodial	138
2605	SHADOW MTN.	9 Cattle	5/1–11/30	100	Custodial	61
20077	SHAMMEL	4 Cattle	4/1–11/30	100	Custodial	32
		3 Cattle	4/1–11/30	100	Custodial	21
9813	SHANNON CREEK	5 Cattle	5/15–1/1	100	Custodial	32
19835	SHAW CREEK	1 Cattle	4/1–11/30	100	Custodial	6
4851	SHAW PLACE	3 Cattle	3/1–2/28	100	Custodial	36
19837	SHEEP SHED COULEE	190 Cattle	7/10–11/29	78	Active	697
15064	SHEEP WAGON	89 Cattle	5/1–12/29	95	Active	682
2667	SHELTERNOOK	1 Cattle	3/1–2/28	100	Custodial	7
		5 Cattle	3/1–2/28	100	Custodial	60
9681	SHERRY COULEE	5 Cattle	3/1–2/28	1000	Custodial	23
15070	SILVER SAGE	5 Cattle	3/1–2/28	100	Active	60
6328	SIMMS CREEK	20 Cattle	8/1–10/31	100	Custodial	59
15056	CUMMINGS–BOHN EXCHANGE	1 Cattle	3/1–2/28	100	EOU	12
2618	SINGLE	13 Cattle	3/1–2/28	100	Custodial	154
19824	SIX DIAMOND	1 Cattle	4/15–10/31	100	Custodial	8
9690	SIXTEEN	3 Cattle	6/10–10/20	100	Custodial	12
15059	SKIBBY PLACE	3 Cattle	3/1–2/28	100	Custodial	38
		266 Cattle	12/5–2/28	65	Active	489
		1 Horse	3/1–2/28	100	Custodial	9
		9 Cattle	3/1–2/28	100	Custodial	105
		5 Horse	9/15–2/28	100	Custodial	26
		422 Cattle	5/1–12/1	65	Active	1939
2512	SLUGGETT RANCH	15 Cattle	3/1–2/28	100	Custodial	175
9698	SMITH CREEK	165 Cattle	6/15–9/15	10	Active	50
20013	SMITH–BOLSTAD COMMON	46 Cattle	7/1–8/31	43	Active	40
		20 Yearling Cattle	6/16–8–15	100	EOU	40
		21 Cattle	5/16–9/14	43	Active	36
15144	SNOOSE CREEK	122 Cattle	5/1–11/1	20	Active	148
14910	SO FORK BEAR CREEK	3 Cattle	5/1–11/15	100	Custodial	18
2819	SO FORK FLATWILLOW	1 Cattle	3/1–2/28	100	Custodial	9
2654	SO. FORK BEAR CRK	3 Cattle	5/1–11/15	100	Custodial	18
2559	SODA CREEK	204 Yearling Cattle	5/15–9/14	46	Active	379
15090	SOLF BROS. A	43 Cattle	4/1–5/31	63	Active	54
		43 Cattle	11/1–11/30	63	Active	27

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4897	SOLF BROS. B	1	Cattle	6/1–2/28	100	Custodial	5
2829	SOUTH BECKET	2	Cattle	3/1–2/28	100	Custodial	18
2635	SOUTH BLACK BUTTE	11	Cattle	3/1–2/28	100	Custodial	134
6326	SOUTH CANAL DITCH	1	Cattle	9/1–2/28	100	Custodial	6
		1	Cattle	3/1–5/31	100	Custodial	3
2802	SOUTH ELK CREEK	14	Cattle	3/1–2/28	100	Custodial	164
6443	SOUTH FORK	15	Cattle	6/1–9/15	100	Custodial	45
12604	SOUTH FOREST GROVE	7	Cattle	3/1–2/28	100	Custodial	79
2820	SOUTH FORK RANCH	4	Cattle	3/1–2/28	100	Custodial	30
9655	SOUTH FORK SHEEP CR	6	Cattle	6/1–8/31	100	Custodial	19
19741	SOUTH MOCCASIN	5	Cattle	5/1–11/15	100	Custodial	27
5142	SOUTH PASTURE	86	Cattle	3/15–6/15	52	Active	137
15153	SOUTH WAR HORSE	38	Cattle	7/1–12/15	85	Active	178
10059	SPEAR T	12	Cattle	6/20–9/30	100	Custodial	25
10058	SPEAR T RANCH	2	Cattle	3/1–2/28	100	Active	24
15147	SPRING CREEK	57	Cattle	5/1–9/10	100	Active	249
		70	Cattle	5/1–9/10	76	Active	233
9758	SPRING CREEK PASTURE	32	Cattle	7/1–9/15	100	Custodial	81
3145	SPRING CREEK–FLATWILLOW	10	Cattle	3/1–2/28	100	Custodial	120
2534	SPRINGS LEASE	4	Cattle	3/1–2/28	100	Custodial	42
9808	STARVE OUT FLAT	48	Cattle	5/15–11/15	100	Active	292
20081	STULC AMP	13	Cattle	3/1–2/28	100	Custodial	156
		151	Cattle	5/10–11/15	66	Active	623
2510	STYER ANTELOPE	73	Cattle	5/15–10/31	29	Active	118
2509	STYER IND. B (KOSIR)	1	Cattle	3/1–5/31	100	Custodial	5
		1	Cattle	8/1–2/28	100	Custodial	4
15097	SUFFOLK	10	Cattle	3/1–2/28	100	Custodial	119
20080	SUFFOLK NORTH	4	Cattle	3/1–2/28	100	Custodial	48
11186	SUGARLOAF	2	Horse	7/1–10/31	100	Custodial	10
9815	SUN CREEK	2	Cattle	3/1–2/28	100	Custodial	32
6327	SUN RIVER DITCH	8	Cattle	8/1–12/31	100	Custodial	30
12607	SURENOUGH CREEK	17	Cattle	6/1–9/30	100	Custodial	66
		9	Cattle	3/1–2/28	100	Custodial	101
19691	SURPRISE CK BADLANDS	9	Cattle	9/1–12/31	100	Custodial	39
9829	SURPRISE CREEK	3	Cattle	5/1–10/25	100	Custodial	17
6321	SWIFT DAM	2	Cattle	5/15–12/14	100	Custodial	9
15053	SWINGING H DOVETAIL	410	Cattle	5/5–10/25	41	Active	962
4966	SWINGING H IND. B	4	Cattle	3/1–2/28	100	Custodial	58
9670	T J	14	Cattle	6/14–9/1	100	Active	37
2033	TAYLOR RANCH	1	Cattle	3/1–2/28	100	Custodial	5
4899	TEIGEN IND. PASTURE	70	Cattle	1/1–2/28	29	Active	39
		40	Cattle	3/1–6/15	29	Active	71
9692	THE CANYON	3	Cattle	3/1–2/28	100	Custodial	36
6319	THE FLAT	10	Cattle	9/1–12/1	16	Active	48

Allotment #	Allotment Name	Livestock # & Kind		Season of Use	% Public Land	Type of Use	AUMs
20035	THREE BAR	4	Cattle	6/15–12/15	100	Custodial	24
2644	THREE LINKS	26	Cattle	4/1–11/15	100	Active	196
7832	TIGER BUTTE	4	Cattle	6/1–10/31	100	Custodial	20
15082	TIN CAN	73	Cattle	5/1–10/31	92	Active	406
		8	Cattle	3/1–2/28	100	Custodial	102
		33	Cattle	5/1–10/31	64	Active	128
		34	Cattle	5/1–10/31	83	Active	171
		2	Cattle	3/1–2/28	100	Custodial	17
6337	TINTINGER SLOUGH	30	Cattle	5/15–10/1	2	Active	6
7762	TOMS GULCH	2	Horse	5/1–11/30	100	Custodial	19
6312	TUNNEL LAKE	158	Cattle	6/15–9/15	68	Active	329
15063	TWIN BUTTES	143	Cattle	5/1–10/31	88	Active	761
9695	TWIN SISTERS	2	Cattle	4/1–11/30	100	Custodial	17
15028	TWO CROW RR	1291	Cattle	4/15–9/15	82	Active	5360
9812	UPPER BIRD CREEK	11	Cattle	6/1–9/30	100	Custodial	43
15019	UPPER CAT CREEK	4	Cattle	3/1–5/31	100	Custodial	42
2537	UPPER CAT CREEK 2	104	Cattle	7/1–11/30	61	Active	319
9746	UPPER COFFEE CREEK	4	Cattle	4/1–11/30	100	Custodial	31
9827	UPPER COWBOY CREEK	1	Cattle	3/1–2/28	100	Custodial	7
2558	UPPER PASTURE	1	Cattle	3/1–2/28	100	Custodial	5
		1	Horse	3/1–2/28	100	Custodial	5
9749	UPPER SHONKIN	3	Cattle	5/15–10/20	100	Custodial	16
20070	UPPER TWO CALF	28	Cattle	3/1–2/28	100	Active	336
		539	Cattle	6/16–10/30	63	Active	1529
9706	UPPER WILSON COULEE	1	Cattle	3/1–2/28	100	Custodial	10
4964	UPPER/LOWER 79 TRAIL	9	Cattle	3/1–2/28	100	Custodial	101
2538	VIDAL	1	Cattle	3/1–2/28	100	Custodial	12
2526	VINGER PLACE	1	Cattle	3/1–2/28	100	Custodial	11
4838	VONTVER–DOBSON	20	Cattle	3/1–2/28	12	Custodial	29
		1	Cattle	5/15–10/31	100	Custodial	2
2013	W. INDIAN BUTTE	83	Cattle	7/1–10/31	47	Active	158
		16	Cattle	7/1–10/31	100	Active	65
		37	Cattle	5/16 / 11/15	100	Active	224
		13	Cattle	5/16–.11/15	95	Active	75
		25	Cattle	6/1–10/31	100	Active	126
		4	Cattle	5/16–11/15	100	Active	24
		101	Cattle	5/16–11/15	42	Active	257
		53	Cattle	5/1–11/15	60	Active	208
		20	Cattle	8/1–10/31	100	Active	60
6320	WADDEL LAKES	2	Cattle	3/1–2/28	100	Custodial	25
14903	WALKER RANCH A,B,D	111	Cattle	5/1–12/31	25	Active	224
		1	Cattle	3/1–2/28	100	Custodial	6
20089	WALLING	8	Cattle	3/1–2/28	100	Custodial	96
20088	WALTERS	7	Cattle	3/1–2/28	100	Custodial	78
15046	WAR HORSE	64	Cattle	5/1–12/31	24	Active	124

Allotment #	Allotment Name	Livestock # & Kind	Season of Use	% Public Land	Type of Use	AUMs
15107	WARD B COMMON	38 Cattle	3/1–2/28	100	Custodial	452
15152	WARHORSE IND.	52 Cattle	7/1–9/30	92	Active	145
20017	WARNEKE	22 Cattle	5/1–10/30	100	Active	132
9806	WATER TANK SMITH RIVER	12 Cattle	6/1–11/30	100	Custodial	70
2511	WEAVER RANCH	2 Yearling Cattle	3/1–2/28	100	Custodial	22
		6 Cattle	3/1–2/28	100	Custodial	73
		3 Cattle	3/1–2/28	100	Custodial	39
10086	WELLER PLACE	2 Cattle	3/1–2/28	100	Custodial	14
2677	WELLMAN	1 Cattle	3/1–2/28	100	Custodial	7
15039	WEST BASSETT	6 Cattle	3/1–2/28	100	Custodial	73
6323	WEST BIRCH CREEK	1 Horse	3/1–2/28	100	Custodial	11
4963	WEST BLOOD CREEK	115 Cattle	5/15–11/1	12	Active	78
2636	WEST BOHEMIAN	16 Cattle	3/1–2/28	100	Custodial	194
15054	WEST CAT CREEK	150 Cattle	5/5–9/20	100	Active	685
2504	WEST CR. CREEK	102 Cattle	5/16–10/31	36	Active	204
15128	WEST CROOKED CREEK	134 Cattle	9/16–10/31	51	Active	103
10062	WEST FK BEAVER CREEK	2 Cattle	7/1–10/30	100	Custodial	8
9780	WEST FORK HOUND CR	4 Cattle	6/1–10/15	100	Custodial	18
9697	WEST FORK MUD CREEK	3 Cattle	3/1–2/28	100	Custodial	40
9830	WEST SHONKIN CREEK	1 Cattle	3/1–2/28	100	Custodial	4
15023	WEST WINNETT	54 Cattle	6/1–9/30	100	Active	217
		12 Cattle	6/1–9/30	100	Custodial	48
20091	WHERLEY	17 Cattle	5/1–9/25	100	Active	83
15132	WHISKEY RIDGE	112 Cattle	5/15–9/15	87	Active	397
2528	WHISKEY RIDGE 5A CUS	1 Cattle	4/15–12/31	100	Custodial	5
2524	WHISKY GULCH GR	6 Cattle	6/16–10/15	100	Custodial	22
10073	WHISKY GULCH JR	12 Cattle	6/16–10/15	100	Custodial	45
14906	WHISONANT PLACE	1 Cattle	3/1–2/28	100	Custodial	14
9838	WHITE ROCK	47 Cattle	5/1–12/1	100	Active	332
9841	WIDOW COULEE	7 Cattle	8/1–2/28	100	Custodial	50
15072	WILD HORSE	98 Cattle	4/1–11/15	32	Active	236
		65 Cattle	4/1–11/17	49	Active	242
		26 Cattle	9/1–2/28	36	Active	56
		26 Cattle	3/1–5/31	35	Active	28
		22 Cattle	9/1–2/28	57	Active	75
		22 Cattle	3/1–5/16	57	Active	32
		23 Cattle	9/1–2/28	28	Active	38
		20 Cattle	3/1–5/15	28	Active	14
		36 Cattle	4/15–11/1	44	Active	105
		50 Cattle	4/1–11/16	45	Active	170

Allotment #	Allotment Name	Livestock # & Kind		Season of Use	% Public Land	Type of Use	AUMs
14970	WILD HORSE PASTURE	13	Cattle	3/1–2/28	100	Custodial	149
4886	WILLIAM LEWIS IND	133	Cattle	6/1–11/1	96	Active	646
		68	Cattle	4/1–6/30	62	Active	126
2031	WILLIS PLACE	12	Cattle	3/1–2/28	100	Custodial	148
		4	Cattle	3/1–2/28	100	Custodial	46
		5	Cattle	3/1–2/28	100	Custodial	62
		66	Cattle	12/1–2/28	66	Active	129
2034	WILLMORE	3	Cattle	3/1–2/28	100	Custodial	38
2807	WILLOW CREEK	12	Cattle	3/1–2/28	100	Custodial	144
7608	WILLOW CREEK	1	Cattle	3/1–10/15	100	Custodial	4
7612	WILLOW CREEK CANAL	138	Cattle	6/1–10/31	23	Active	160
19737	WILLOW CRK HEADWATER	1	Cattle	3/1–2/28	100	Custodial	16
6314	WILLOW CRK. PASTURE	6	Cattle	6/15–10/15	100	Custodial	–
9866	WILSON COULEE	63	Cattle	4/1–10/31	35	Active	155
		39	Cattle	9/1–12/30	35	Active	54
4873	WINDBREAK	15	Cattle	5/1–7/3	100	Active	32
15011	WINDMILL EAST	3	Cattle	3/1–2/28	100	Custodial	41
25006	WINDMILL WEST	102	Cattle	3/1–5/31	84	Active	259
		106	Cattle	9/1–2/28	84	Active	530
9818	WINDY HOLLOW	36	Cattle	5/15–11/15	100	Custodial	219
		3	Horse	3/1–2/28	100	Custodial	35
		24	Cattle	3/1–2/28	100	Custodial	291
1518	WINTER PASTURE	58	Cattle	5/1–11/30	43	Active	175
		4	Cattle	3/1–2/28	100	Custodial	49
9819	WOLF BUTTE	6	Cattle	3/1–2/28	100	Custodial	85
20016	WOLF CREEK COMMON	180	Cattle	5/1–10/31	27	Active	294
		136	Cattle	5/1–10/31	57	Active	469
		53	Cattle	7/1–9/30	100	EOU	160
		159	Cattle	5/1–10/30	48	Active	459
2513	WOLFF IND. B	22	Cattle	3/1–2/28	100	Custodial	261
9853	WOODCOCK	1	Cattle	3/1–2/28	100	Custodial	13
2517	WOODCOCK COULEE	85	Cattle	5/1–10/30	22	Active	113
20031	WOODHAWK	198	Cattle	5/1–5/20	79	Active	103
		14	Cattle	3/1–2/28	100	Custodial	162
		472	Cattle	5/21–6/15	100	Active	403
		315	Cattle	5/1–6/15	92	Active	438
		460	Cattle	6/16–10/31	78	Active	1628
		30	Cattle	3/1–2/28	100	Custodial	356
		2	Cattle	3/1–2/28	100	Custodial	29
4898	YELLOW WATER BASIN	5	Cattle	3/1–2/28	100	Custodial	59
		25	Cattle	3/1–5/31	100	Custodial	77
		25	Cattle	9/15–10/15	100	Custodial	26
		37	Cattle	6/1–8/31	90	Active	101
15040	YELLOWWATER	141	Cattle	5/1–11/30	33	Active	327

Allotment #	Allotment Name	Livestock # & Kind		Season of Use	% Public Land	Type of Use	AUMs
15085	YELLOWWATER CREEK	82	Cattle	6/1–12/1	35	Active	174
		4	Cattle	3/1–2/28	100	Custodial	44
15092	YELLOWWATER IND. B	28	Cattle	8/1–12/30	61	Active	117
7775	YENDRICK	20	Cattle	7/2–8/10	47	Active	12
15036	ZIMMERMAN PLACE	63	Cattle	4/20–7/15	79	Active	142
		63	Cattle	9/1–12/1	79	Active	151
		56	Cattle	8/1–12/1	70	Active	159
3309	ZIMMERMAN WEST HIGHWAY	30	Cattle	3/20–5/1	100	Custodial	43

*EOU (Exchange of Use) – issued to an applicant who owns or controls lands that are unfenced and intermingled with public lands in the same allotment when use under such an agreement will be in harmony with the management objectives for the allotment and will be compatible with the existing livestock operations.

Appendix P

Drought Policy

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Appendix P. Drought Policy

Bureau of Land Management

POLICY FOR ADMINISTERING PUBLIC LAND GRAZING
IN
MONTANA, NORTH AND SOUTH DAKOTA
DURING PERIODS OF DROUGHT

P.1 INTRODUCTION

Livestock grazing is but one of the activities that BLM manages on the public lands. Drought stresses many resources and resource uses including recreation, soils, timber, vegetation, watersheds, and wildlife as well as livestock forage. However, only livestock and human activities can be readily controlled or restricted from access to public lands. The other resources are either immobile or not readily controlled. This policy deals with livestock use and implements provisions of current laws and regulations. Other uses that may require special consideration during severe drought may be addressed in separate policy statements or actions.

Vegetation cover is one part of productive rangelands because it strongly affects soil moisture. When drought reduces the total forage produced and the normal residual vegetation (standing and down plant material) is used by livestock, insects, and other grazing animals, soil moisture and temperature are affected. Soil temperatures are lowered by the residual cover during warm periods and are raised by the residual cover during cold periods. Moisture intake and penetration into soils is keyed to the amount and type of residual cover found on a soil/ecological site. In fact, with little or no residual cover on rangelands, moisture events will likely produce little effective penetration into the soil. Residual cover provides protection for soils, vegetation, wildlife, watersheds, and for the many other resources dependent upon good vegetation and livestock management.

P.2 AUTHORITY

This document implements provisions of:

- Taylor Grazing Act of June 28, 1934, as amended;
- Federal Land Policy and Management Act of 1976, as amended;
- Public Rangelands Improvement Act of 1978;
- Regulations in 43 code of Federal Regulations, Group 4100 (43 CFR 4100).

P.3 POLICY

This policy is meant to supplement the national drought policy as set forth by Washington Office Instruction Memorandum 2013-094.

It is the policy and objective of the BLM to: manage the public lands and authorize livestock grazing under the principles of multiple use and sustained yield; provide for the orderly administration of grazing by domestic livestock on the public lands; and provide for productive and healthy soil and vegetation resources as well as other environmental values.

Accomplishment of these objectives becomes more difficult during periods of range depletion caused by drought. Normal grazing schedules and livestock management practices may have to be modified. Additional coordination, consultation, and data exchange between livestock operators and Bureau personnel will be required, over and above the level normally practiced. Appropriate local, state and Federal agencies and the interested public will have to be involved at times and consistently kept informed.

The principal thrust of the policy and procedures in this document, and other regulatory and procedural requirements not repeated here, will be for the livestock operator and BLM to jointly develop strategies for livestock use on public land during and following drought. Strategies selected should be those that best protect rangeland resources while minimizing impacts on the operator to the extent possible. To that end, every degree of flexibility provided by the laws and implementing regulations will be available to authorized officers of the Bureau.

Voluntary adjustments in livestock use of public lands should be sought at the earliest date it becomes apparent that "normal" grazing schedules cannot be followed, or, if followed, would result in long-term resource degradation. The earlier an agreement can be reached or a decision made that "normal" grazing schedules cannot be followed, the more opportunities livestock operators will have to consider alternatives to minimize impacts on his or her operation. Waiting until the last minute before scheduled turnout to make a determination or decision will reduce the options available to both the operator and the Bureau.

An interdisciplinary approach (within the confines of scarce skills availability) to identify natural resources and other applicable public values vulnerable to drought will be used to prioritize allotments for attention. Second, efforts to manage public rangeland under drought conditions will be directed next to allotments with resource concerns—typically "I" category allotments. Specific allotments in the "M" and "C" categories can also be considered high priority when resource values or conditions so require. Regardless of the category assigned to an allotment, operators should be aware of the procedures and flexibilities available for dealing with drought conditions.

BLM fully expects that the vast majority of livestock operators will recognize the need and voluntarily make adjustments in livestock use of public lands the longer a drought persists. These adjustments will be recognized during the application process and grazing bills will be adjusted accordingly. Adjustments in grazing use may include but are not limited to reducing livestock numbers, shortening the season of use, altering pasture move dates, changing pasture rotations, authorizing water hauling (after documenting NEPA compliance), closing allotments to grazing use, or allowing use in vacant allotments.

- Regulatory mechanisms to voluntarily implement grazing use changes include approval of applications for voluntary non-use (43 CFR 4130.2(g)), or approving applications for changes within the terms and conditions of permits and leases (43 CFR 4130.4(b)), or some combination.
- Line officers also have the option to implement needed changes through a formal agreement between the BLM and grazing operator (which is recommended to be implemented by decision) that specifies the drought-related grazing adjustments (43 CFR 4110.3-3(a)), or by temporarily suspending or otherwise modifying use via a decision that may be put into immediate effect, if necessary (43 CFR 4110.3-2(a) and 3-3(b)).[2]
- If using an agreement or decision, indicate within it the intended duration of the drought-related adjustments and include supporting rationale for the indicated timeframe.

- Regulation 43 CFR 4130.6-2 provides the mechanism for the BLM to authorize use in vacant allotments. Do not modify permits and leases (43 CFR 4130.3-3) to make drought responsive short-term grazing use adjustments.

Offices are required to screen any proposed drought mitigation strategies and actions to determine if they trigger the requirement for National Environmental Policy Act (NEPA) compliance documentation and if so, whether existing documentation is adequate or whether additional analysis is needed. Addressing drought management in Resource Management Plans or Allotment Management Plans, or preparing programmatic drought action plans, provides pro-active opportunities to address potential conditions and contingencies.

In those situations where agreement cannot be reached, authorized officers of the Bureau have the final responsibility and accountability for ensuring that public lands are not permanently damaged by improper use. If issuance of a decision concerning livestock use becomes necessary, the procedure specified in 43 CFR 4160 will be followed. It should be further understood that final decisions can be modified or rescinded, if the conditions that existed when the decision was issued no longer exist. If significant amounts of precipitation occur during the growing season, producing significant changes in the amount of moisture available to plants, this may cause decisions to be reconsidered. The consultation, cooperation, and coordination process will be used to obtain livestock operator and stakeholder involvement in such cases.

P.4 PROCEDURES AND GUIDELINES

The following guidelines and procedures are intended to provide the data, flexibility and direction for public land managers and livestock operators to develop strategies and make decisions during drought conditions. Consultation and coordination with livestock operators and other interested parties will be carried out during all procedural steps.

P.4.1 Winter Assessment (Late-October - February)

Analysis

1. Review the past season's monitoring results. Analyze plant growth, actual use, insect infestation occurrences, utilization, use pattern maps, residual cover, and especially the use of "rest" pastures. Review the past season's land health assessments in areas of concern.
2. Analyze precipitation records and distribution patterns from the National Weather Service, the Montana Drought and Water Information website, the North Dakota Drought website, the South Dakota Drought website, local cooperators, BLM, and other agencies. Tabulate moisture departures from normal levels and timing of precipitation in relation to past years' growing season.
3. Determine whether currently available data is sufficient to inform and support drought responsive actions.
4. In identified priority or "I" allotments where there is concern because there is limited residual cover, effective precipitation well below normal, rest pastures already used, abnormally high utilization or use patterns, etc., field offices may opt to measure soil moisture in representative areas for additional data. Where available, use RAWS/OMNI sites, existing soil moisture stations, NRCS SCAN soil climate monitoring sites, etc. Additional soil moisture samples are to be taken at the rooting depth of major forage species in representative areas using techniques found in agency manuals/handbooks, the professional literature and extension publications.

Action

1. Where it is apparent resource degradation might occur if drought continues, begin to notify operators through letters and news releases that the coming year's livestock grazing could be affected.
2. Set up range user meetings in affected communities to discuss available information and possible actions to prevent range resource damage.
3. Encourage operators to make needed changes in their grazing schedules, including applying for non-use. If non-use is taken, but activated later should conditions change, BLM will waive the $10 service fee in accordance with 43 CFR 4130.8.3. Authorized officers may issue refund or credit of grazing fees under 43 CFR 4130.8-2(b).
4. Meet with individual operators when available information indicates a particular allotment is affected by severe drought condition. Attempt to reach agreement on alternative grazing strategies if conditions do not change.

P.4.2 Late Winter and Spring Assessment (February - April)

Analysis

1. Review precipitation and soil moisture data for winter and early spring.
2. Review the effects of winter grazing use; snow pack influence for stock water, soil temperatures, etc.
3. Continue soil moisture measurements or monitoring where problems are apparent or in areas of concern. Measurements at rooting depth to measure available water for plants will be especially important during this period.
4. Assess availability of livestock water, in consultation with permittees.
5. Assess the availability of water for wildlife.

Action

1. If drought conditions are continuing, or becoming more severe, follow up winter letters and news releases with updates and attachments to grazing applications. Conduct meetings with Cooperative State Grazing Districts and Resource Advisory Councils. Meetings are encouraged with other concerned individuals and agencies as a part of the grazing management strategy.
2. Contact remaining operators who have not voluntarily made needed changes. Where you believe you have enough information to indicate an allotment is in severe drought condition, meet with the operator to review and explain the information you have and attempt to reach agreement on a grazing strategy. If an agreement cannot be reached and, especially if the allotment has a relatively early turnout date, issue a proposed decision. The extent of use adjustment contained in this decision (delayed turnout, reduction in numbers or duration, total exclusion, etc.) will depend on your assessment of all the factors involved. These include past grazing use, range condition, residual cover, precipitation, soil moisture and the land use objectives for the allotment.
3. If soil moisture is very dry and tending to blow away (Quick Assessment), or below the average soil moisture between field capacity and wilting point (Volumetric Measurement), delay turnout until key forage plants have grown to the 3-4 leaf stage (approximately one-half their normal height--for most of our native grass species about 6 inches). (Manske 2003, Manske 2011, Fraser 2003)

P.4.3 Continuing Assessment (throughout grazing season)

Analysis

1. Continue to closely monitor precipitation in "I" allotments and areas of concern. Attention is directed to determining effective (soil moisture) growing season precipitation.
2. Closely monitor utilization of key plant species and key areas. Remember to consider management objectives when selecting key species and areas.
3. Continue to monitor soil moisture in "I" allotments and areas of concern.
4. Monitor factors other than livestock grazing, such as insect infestations, congregations of wildlife, availability of livestock water, etc.
5. Monitor forage, habitat and water needs for wildlife. Consult with state wildlife agencies as needed.

Action

1. If soil moisture drops below the average soil moisture between field capacity and wilting point (Volumetric Measurement) and utilization has reached objective levels or a maximum of 30 percent utilization has occurred, livestock are to be removed.
2. If soil moisture remains unacceptable (completely dry and blows away (Quick Assessment)) or below wilting point soil moisture levels (Volumetric Measurement) during most of the spring and early summer with little or no growth in primary forage species for livestock (i.e., range readiness has not been reached), advise affected permittees that fall and winter ranges may not be available for use during the current year. Also advise that production in subsequent years may be affected if plant basal areas and density have been severely reduced.
3. For those permittees in "I", allotments with AMPs having available standing forage in rest pastures or fall or winter use pastures, advise the permittees that livestock must be removed from public lands when consumption of standing forage has reached objective levels or a maximum of 50 percent.
4. Adjust monitoring plans to collect data concerning residual cover, plant death, loss of basal area, density, and yield for analysis and use in later years.
5. Utilize interdisciplinary teams to ensure wildlife forage and water requirements are considered when determining adjustments.

P.4.4 Other Considerations

1. The use of salt, mineral, and certain mineral supplements as necessary to overcome natural shortages of minerals in rangeland forage may be authorized as necessary to provide for proper range management(4130.3-2(c)).
2. Maintenance feeding on public lands is not authorized except under very unusual short-term conditions and by permit only. Maintenance feeding during drought conditions is specifically excluded.
3. Applications for a maintenance feeding permit due to poor forage conditions associated with drought should be denied and livestock removed or not allowed.
4. Review RMP guidance on wildlife habitat objectives.

P.4.5 Definitions

Available water: That portion of water in a soil that plants can extract from the soil—generally measured per unit volume of soil; the amount of water in a soil between field capacity and permanent wilting point.

Basal area (range): The area of ground surface covered by the stem or stems of a range plant, usually measured 1 inch above the soil in contrast to the full spread of the foliage.

Density: (1) The number of individual plants per unit area; (2) Refers to the relative closeness of plants to one another.

Field Capacity: The maximum amount of water held in a soil, measured a few days after it has been thoroughly soaked and allowed to drain freely.

Flexibility: The ability to alter the grazing management plan to meet changing conditions.

Flushing: Feeding female animals a concentrated feed shortly before and during the breeding period for the purpose of stimulating ovulation.

Growing season: In temperate climates, that portion of the year when temperature and moisture are usually most favorable for plant growth.

Key species: (1) Forage species whose use serves as our indicator to the use of associated species; (2) Those species which must, because of their importance, be considered in the management program.

Maintenance feeding: Supplying feed to range animals when available forage is too limited to meet their minimum daily requirement (examples are cubes, pellets, baled or loose hay).

Permanent Wilting Point (PWP): The soil water content at which water is no longer available to plants, causing them to wilt because they cannot extract enough water to meet their requirements.

Phenology: The study of periodic biological phenomenon such as flowering, seeding, etc., especially as related to climate.

Range readiness: The defined stage of plant growth at which grazing may begin under a specific management plan without causing permanent damage to vegetation or soil.

Supplemental feed: A feed which supplements the forage available from the public lands and is provided to improve livestock nutrition and good animal husbandry and rangeland management practices. An example is salt or mineral block. Creep feeders to supplement feed for calves and supplemental feeding to "flush" cattle and sheep for breeding may be authorized on public lands when compatible with the resource management objectives.

P.4.6 Soil Moisture Monitoring Methods Appendix

Quick Assessment

Soil moisture readings taken from 3 rooting depths of key forage species (e.g., 4-6 inches, 10-12 inches, 16 inches up to 3 feet) will indicate whether various key forage species have adequate moisture for growth. Squeeze the soil in your hand. Does it form a ball? If so, you probably have adequate soil moisture for growth. If it doesn't form a ball, but your hand feels cool, you probably have some soil moisture left. If the soil is completely dry and blows away, there is likely not enough moisture to sustain plant growth. (Howery 1999).

% Available water remaining	Coarse (Sand - Loamy Sand)	Light (Sandy Loam)	Medium (Loam, Silt Loam, Silty Clay Loam, Clay Loam, Sandy Clay Loam)	Heavy (Sandy Clay, Silty Clay, Clay)
0 (PWP or drier)	Dry, loose, single grained, flows through fingers	Dry, loose, flows through fingers	Powdery, dry, sometimes slightly crusted but easily breaks down into powdery condition	Hard, baked, cracked, sometimes has loose crumbs on surface
< 50	Still appears to be dry; will not form a ball with pressure	Still appears to be dry; will not form a ball	Somewhat crumbly but will hold together from pressure	Somewhat pliable, will ball under pressure
50-75	Still appears to be dry; will not form a ball with pressure	Tends to ball under pressure but seldom will hold together	Forms a ball, somewhat plastic, will sometimes slick slightly with pressure	Forms a ball, will ribbon out between thumb and forefinger

(Table adapted from Manitoba 2013)

Volumetric Measurement

The soil moisture content may be expressed by weight as the ratio of the mass of water present to the dry weight of the soil sample, or by volume as ratio of volume of water to the total volume of the soil sample. To determine any of these ratios for a particular soil sample, the water mass must be determined by drying the soil to constant weight and measuring the soil sample mass after and before drying. The water mass (or weight) is the difference between the weights of the wet and oven dry samples. The criterion for a dry soil sample is the soil sample that has been dried to constant weight in an oven at temperature between 100 – 110°C (105°C is typical). Normally drying is conducted on samples for at least 24 hours. A precision balance scale is needed (±0.001 g.) Volumetric soil moisture can then be determined.

$$\text{Gravimetric soil moisture (W\%)} = \frac{\text{wt. (wet soil)} - \text{wt. (oven dry soil)}}{\text{wt. (oven dry soil)}} \times 100\%$$

$$\text{Volumetric soil moisture } (\theta\%) = \text{gravimetric soil moisture} \times \text{bulk density}$$

{Note: Bulk densities for specific soils can be obtained from the Web Soil Survey.}

Soil moisture measurements can then be compared with water content-15 bar and water content 1/3 bar data for a specific soil from the Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app/). Water content, 15 bar, is the amount of soil water retained at a tension of 15 bars, expressed as a volumetric percentage of the whole soil material. Water retained at 15 bars is significant in the determination of soil water-retention difference, which is used as the initial estimation of available water capacity for some soils. Water retained at 15 bars is an estimation of the wilting point. Water content, one-third bar, is the amount of soil water retained at a tension of 1/3 bar, expressed as a volumetric percentage of the whole soil. Water retained at 1/3 bar is significant in the determination of soil water-retention difference, which is used as the initial estimation of available water capacity for some soils. Water retained at 1/3 bar is the value commonly used to estimate the content of water at field capacity for most soils.

As soil moisture levels approach the wilting point of a soil, the less water available for plants. Plant growth becomes marginal and the plant is stressed. If the plant is further stressed by removal or damage to the top growth, it will begin to lose vigor, roots and thus its ability to grow. It is not unusual to reach this moisture level during late summer in much of Montana, Dakotas, and other semi-arid areas.

Other Soil Moisture Considerations

When monitoring soil moisture the following information should be kept in mind:

1. Soil moisture is measured at the depth of plant roots or to a root limiting layer. It will vary by plant(s) and soil type.
2. Soluble salts, gravel and heavy clay will decrease plant available water capacity.
3. Organic matter, good soil structure will increase plant available water capacity (The capacity increases about 1 percent for each 1 percent of organic matter).
4. Soils with water restricting layers like naturally compact subsoil, shallow bedrock or stratification can increase plant available water capacity of the overlying soil layers.
5. Soils that are deep, medium textured and uniform can have decreased plant available water but allow for deeper rooting.

P.4.7 References

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Appendix Q

Recreation Management Areas

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TABLE OF CONTENTS

Section Page

Appendix Q. Recreation Management Areas.. Q-1

Q.1 Durfee Hills Special Recreation Management Area.. Q-1
Q.2 Judith Mountains Special Recreation Management Area, Judith Peak/Red Mountain Recreation Management Zones.. Q-4
Q.3 Judith Mountains Special Recreation Management Area, Limekiln Canyon Recreation Management Zone.. Q-7
Q.4 Lowry Bridge Special Recreation Management Area.. Q-9
Q.5 North Moccasin Special Recreation Management Area.. Q-11
Q.6 Snowy Mountains Special Recreation Management Area.. Q-13
Q.7 Arrow Creek Backcountry Conservation Area.. Q-16
Q.8 Cemetery Road Backcountry Conservation Area.. Q-20
Q.9 Crooked Creek Backcountry Conservation Area.. Q-25
Q.10 Judith Extensive Recreation Management Area.. Q-29
Q.11 Judith Mountains Backcountry Conservation Area.. Q-31
Q.12 North Moccasin Extensive Recreation Management Area.. Q-35
Q.13 Snowy Mountains Extensive Recreation Management Area.. Q-37
Q.14 Recreation Setting Characteristics Matrix.. Q-39

FIGURES

Page

Q-1 Durfee Hills Special Recreation Management Area.. Q-41
Q-2 Judith Mountains Special Recreation Management Area.. Q-42
Q-3 Lowry Bridge Special Recreation Management Area.. Q-43
Q-4 North Moccasin Recreation Management Area.. Q-44
Q-5 Snowy Mountains Recreation Management Area.. Q-45
Q-6 Arrow Creek Backcountry Conservation Area.. Q-46
Q-7 Cemetery Road Backcountry Conservation Area.. Q-47
Q-8a Alternative B: Crooked Creek Backcountry Conservation Area.. Q-48
Q-8b Alternative C: Crooked Creek Backcountry Conservation Area.. Q-49
Q-9 Judith Extensive Management Area.. Q-50
Q-10 Judith Mountains Backcountry Conservation Area.. Q-51

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Appendix Q. Recreation Management Areas

Q.1 DURFEE HILLS SPECIAL RECREATION MANAGEMENT AREA

Objective: *Participants in visitor assessments report an average 4.0 realization of the targeted experiences and benefit outcome stated in the following table (4.0, on a probability scale, where 1=not at all realized to 5=totally realized). (see **Figure Q-1**, Durfee Hills Special Recreation Management Area)*

	Alternative A (No Action)	**Alternative B**	**Alternative C1 (Preferred Alternative)**	**Alternative C2 (Proposed Alternative)**	**Alternative D**
Targeted Activities	No similar action (*Durfee Hills is not a Recreation Management Area (RMA) under this alternative*).	No similar action (*Durfee Hills is not an RMA under this alternative*).	No similar action (*Durfee Hills is not an RMA under this alternative*).		Hunting, camping, hiking, and wildlife viewing.
Targeted Experiences					• Enjoying the closeness of family and friends. • Enjoying exploration. • Enjoying risk-taking adventure. • Enjoying a hunting experience close to home and knowing this attraction is here. • Talking about equipment and gear.
Targeted Benefits					• Improved outdoor knowledge and self-confidence. • Greater community ownership and stewardship of public lands. • Increasing sense of personal accountability for acting responsibly on public lands. • Improved opportunity to view wildlife close up. • Improved physical capacity to take part in favorite recreation.

		Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Recreation Setting Characteristics *(refer to page Q-39 for descriptions)*						
Physical	*Remoteness*	No similar action (*Durfee Hills is not an RMA under this alternative*).				Middle country
	Naturalness					Middle country
	Facilities					Primitive
Social	*Contacts*					Primitive
	Group Size					Primitive
	Evidence of Use					Middle country
Operational	*Access*					Manage access to support recreational opportunities (primarily big game hunting) for fixed-wing aircraft and helicopters.
	Visitor Services					Primitive
	Management Controls					Primitive
Management Actions and Allowable Use Decisions						
Visual Resource Management (VRM) Class		No similar actions or allowable uses (*Durfee Hills is not an RMA under this alternative*).				Manage as VRM Class III.
Rights-of-Way (ROW)						Available for ROW location.
Leasable Minerals: Fluids						Open
Leasable Minerals: Coal and Nonenergy Solids						Open
Locatable Minerals						Open
Mineral Materials						Open
Special Recreation Permits (SRPs)						All SRPs must be beneficial or neutral to the Special Recreation Management Area (SRMA). The Lewistown Field Office would evaluate the need for new SRPs or new uses on existing permits every 10 years. SRPs would be issued as a discretionary action for activities that 1) are consistent with resource and program objectives, 2) are within budgetary and workload constraints, and 3)

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
					would satisfy a public demand that the applicant can factually demonstrate is not being met.
Travel Management					Designate travel as limited to designated routes.
Forestry					Forest management activities may be undertaken to accomplish resource objectives.
Implementation Actions					
Management	No similar implementation actions (*Durfee Hills is not an RMA under this alternative*).				Allow for the designation of landing strips and helicopter pads to support safe aircraft landings.
Administration					Develop a buffer around landing sites to ensure the safety of those in aircraft and those on the ground.
Information and Education					Post rules and regulations on camping and caching limits.
Monitoring					• Supported by BLM law enforcement ranger and local flying community.
Camping Restrictions					• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit). • Food storage compliance is required. • Store and dispose of garbage, food, solid human waste, toilet paper, and other possible wildlife attractants. • Dispose of solid human waste and toilet paper in a portable toilet or Waste Alleviation & Gelling (WAG) bag and carry out. • Pack in/pack out policy must be adhered to at all times.
Travel Management					Manage access for safe landing of fixed-wing aircraft and helicopters

Q.2 Judith Mountains Special Recreation Management Area, Judith Peak/Red Mountain Recreation Management Zones

Objective: *Participants in visitor assessments report an average 4.0 realization of the targeted experiences and benefit outcome stated in the following table (4.0, on a probability scale, where 1=not at all realized to 5=totally realized). (see* ***Figure Q-2****, Judith Mountains Special Recreation Management Area)*

		Alternative A (No Action)	**Alternative B**	**Alternative C1 (Preferred Alternative)**	**Alternative C2 (Proposed Alternative)**	**Alternative D**
Targeted Activities		Picnicking, scenic viewing, hiking, driving for pleasure, and caving opportunities.	No similar action (see *Judith Mountains Backcountry Conservation Area [BCA])/Extensive Recreation Management Area [ERMA]).*	Camping, hiking, scenic viewing, casual rock collection; and winter activities: cross-country skiing and snowshoeing		
Targeted Experiences		No similar action.		• Enjoying exploration. • Having a greater understanding about what will happen while here. • Enjoying peace and quiet. • Enjoying social interactions and family togetherness. • Enjoying participation in outdoor activities.		
Targeted Benefits		No similar action.		• Enhanced ability for visitors to find areas providing recreation experiences and benefits. • Experiencing greater self-reliance. • Developing improved skills for outdoor enjoyment with others. • Developing improved community cooperation and involvement with site maintenance. • Having a closer relationship with the natural world.		
Recreation Setting Characteristics *(refer to page Q-39 for descriptions)*						
Physical	*Remoteness*	No similar action.	No similar action (see *Judith Mountains BCA*).	• Enjoying Front country • Rural • Back country • Middle country • Back country • Front country • Front country • Primitive/back country • Back country		
	Naturalness	No similar action.				
	Facilities	No similar action.				
Social	*Contacts*	No similar action.				
	Group Size	No similar action.				
	Evidence of Use	No similar action.				
Operational	*Access*	No similar action.				
	Visitor Services	No similar action.				
	Management Controls	No similar action.				
Management Actions and Allowable Use Decisions						
Visual Resource Management (VRM) Class		No similar action.	No similar action (see *Judith Mountains BCA*).	Manage as VRM Class III.		
Rights-of-Way (ROW)		No similar action.		• Available for ROW location • Consider whether the function or suitability of the recreation experience and benefits will be impaired.		

	Alternative A (No Action)	**Alternative B**	**Alternative C1 (Preferred Alternative)**	**Alternative C2 (Proposed Alternative)**	**Alternative D**
Leasable Minerals: Fluids and Solids	No similar action.		No similar action.		
Locatable Minerals	A rock collecting area for double terminated, smoky quartz crystals (locally known as Judith Peak diamonds) may be identified along Judith Peak Road.		Designate the Judith Peak diamonds area for casual rock collection.		
Mineral Materials	No similar action.		No similar action.		
Special Recreation Permits (SRPs)	No similar action.		• Require all SRPs to be beneficial or neutral to the recreation management zone (RMZ). • Authorize organized and competitive SRP events that do not create user conflicts.		
Travel Management	No similar action.		No similar action.		
Forestry/Fire	Available for restricted management of forest products.		• Forest management activities may be undertaken to accomplish resource objectives while maintaining the character of the area. • Allow mechanical manipulation, such as chainsaws and helicopters, while maintaining the character of the area. • Allow the suppression of wildfires using mechanized equipment.		
Implementation Actions					
Management	No similar action.	No similar action (see *Judith Mountains BCA*).	• Evaluate Red Mountain for a trail system. • Manage for camping opportunities. • Manage for motorized and nonmotorized activities. • Allow prescribed burning to mimic natural processes. • Allow for herbicide application to maintain and restore native vegetation. • Manage for projects to restore riparian and stream functions. • Support native fish restoration projects. • Consider installation of water developments that benefit wildlife. • Maintain improved roads, primitive roads, and motorized trails located outside of the Special Recreation Management Area (SRMA) that serve as important access points. • Maintain primitive roads and motorized trails located within the SRMA boundaries that are important for public access. • Manage primitive roads and motorized trails within the SRMA boundaries to maintain the existing character; do not improve primitive roads and motorized trails to a higher transportation standard. • Restrict the construction of new improved roads, primitive roads, and motorized trails within designated areas, allowing for emergencies and valid existing rights, to conserve unfragmented habitat and hunting and fishing opportunities.		
Administration	Pursue partnerships with local groups.		• Pursue partnerships with local clubs for adopt-a-trail programs and to support area maintenance. • Manage issues that impact public safety.		

<table>
<tr><th></th><th>Alternative A
(No Action)</th><th>Alternative B</th><th>Alternative C1
(Preferred Alternative)</th><th>Alternative C2
(Proposed Alternative)</th><th>Alternative D</th></tr>
<tr><td><i>Information and Education</i></td><td>Use signs, maps, and brochures to identify recreation resources for the public.</td><td></td><td colspan="3">• Provide visitor services, such as trail identification and route signs, information kiosks, and visitor use maps onsite.
• Post rules and regulations regarding camping at all developed campsites.</td></tr>
<tr><td><i>Monitoring</i></td><td>No similar action.</td><td></td><td colspan="3">Supported by BLM field staff, in conjunction with collaborating partnerships and agencies.</td></tr>
<tr><td><i>Facility Development</i></td><td>• Develop undeveloped recreation sites in Collar Gulch area.
• Develop scenic overlook on Judith Peak.</td><td></td><td colspan="3">• Provide visitor services, such as trail identification, route signs, portal entry kiosks, and access maps.
• Develop staging and parking areas to protect resources.
• Designate camping sites for both developed and dispersed sites.
• Include in developed sites camping pads, vault toilets, picnic tables, fire pits, and shelters.
• Develop trailhead at Collar Gulch.
• Develop interpretive site at Judith Peak Scenic Overlook.</td></tr>
<tr><td><i>Camping Restrictions</i></td><td>16-day camping limit rules apply.</td><td></td><td colspan="3">• 16-day camping limit rules apply.
• 10-day caching limit (caching limit included in camping limit).
• Pack in/pack out policy must be adhered to at all times.
• Montana camping rules must be adhered to at all times, including camping within 300 feet of an open road on BLM-administered land.</td></tr>
<tr><td><i>Travel Management</i></td><td>• Develop trail systems in the Collar Gulch area in coordination with Fergus County's Camp Maiden site.
• Construct a mountain bike trail from the Red Mountain recreation site to the Collar Peak trailhead, a distance of 5 miles, provided a partnership with another entity can be obtained.</td><td></td><td colspan="2">Designate the area as limited to designated routes.</td><td>• Maintain designated roads, primitive roads, and nonmotorized trails.
• Consider developing a trail system within the Red Mountain recreation area.</td></tr>
</table>

Q.3 JUDITH MOUNTAINS SPECIAL RECREATION MANAGEMENT AREA, LIMEKILN CANYON RECREATION MANAGEMENT ZONE

Objective: *Participants in visitor assessments report an average 4.0 realization of the targeted experiences and benefit outcome stated in the following table. (4.0, on a probability scale, where 1=not at all realized to 5=totally realized). (see* ***Figure Q-2****, Judith Mountains Special Recreation Management Area)*

		Alternative A (No Action)	**Alternative B**	**Alternative C1 (Preferred Alternative)**	**Alternative C2 (Proposed Alternative)**	**Alternative D**
Targeted Activities		Picnicking, scenic viewing, hiking, driving for pleasure, and caving opportunities.	No similar action (see *Judith Mountains Backcountry Conservation Area [BCA]/Extensive Recreation Management Area [ERMA]*).	Camping, hiking, horseback riding, mountain biking, scenic viewing, and caving; and winter activities: cross-country skiing and snowshoeing.		
Targeted Experiences		No similar action.		• Enjoying access to close-to-home outdoor amenities. • Enjoying meeting new people with similar interests. • Enjoying exploration. • Releasing or reducing stress. • Getting physical exercise. • Savoring a natural experience.		
Targeted Benefits		No similar action.		• Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits. • Greater sensitivity to/respect for other visitors. • Greater understanding of the importance of recreation and tourism in our community. • Enlarged sense of personal accountability for acting responsibly on public lands. • Improved community cooperation and involvement with site maintenance.		
Recreation Setting Characteristics *(refer to page Q-39 for descriptions)*						
Physical	*Remoteness*	No similar action.	No similar action (see *Judith Mountains BCA*).	Front country	Front country	
	Naturalness	No similar action.		Rural	Rural	
	Facilities	No similar action.		Front country	Front country	
Social	*Contacts*	No similar action.		Middle country	Middle country	
	Group Size	No similar action.		Primitive	Primitive	
	Evidence of Use	No similar action.		Middle country	Middle country	
Operational	*Access*	No similar action.		Middle country	Middle country	
	Visitor Services	No similar action.		Middle country	Middle country	
	Management Controls	No similar action.		Back country	Back country	
Management Actions and Allowable Use Decisions						
Visual Resource Management (VRM) Class		No similar action.	No similar action (see *Judith Mountains BCA*).	Manage as VRM Class III.		
Rights-of-Way (ROW)		No similar action.		• Available for ROW location. • Consider whether the function or suitability of the recreation experience and benefits will be impaired.		

	Alternative A (No Action)	**Alternative B**	**Alternative C1 (Preferred Alternative)**	**Alternative C2 (Proposed Alternative)**	**Alternative D**
Leasable Minerals: Fluids and Solids	No similar action.		No similar action.		
Locatable Minerals	No similar action.		No similar action.		
Mineral Materials	No similar action.		No similar action.		
Special Recreation Permits (SRPs)	No similar action.		• Require that all SRPs be beneficial or neutral to the recreation management zone (RMZ). • Authorize organized and competitive SRP events that do not create user conflicts.		
Travel Management	No similar action.		No similar action.		
Forestry/Fire	Available for restricted management of forest products.		• Forest management activities may be undertaken to accomplish resource objectives, while maintaining the character of the area. • Allow mechanical manipulation, such as chainsaws and helicopters, while maintaining the character of the area. • Allow the suppression of wildfires using mechanized equipment.		
Implementation Actions					
Management	An activity plan may be developed for Limekiln Canyon.	No similar action (see *Judith Mountains BCA*).	• Manage Limekiln Canyon for primarily nonmotorized and mechanized activities and camping opportunities. • Evaluate the eastern portion of the RMZ for developing additional nonmotorized and mechanized trails. • Allow prescribed burning to mimic natural processes. • Allow herbicide application to maintain and restore native vegetation. • Manage for projects to restore riparian and stream functions. • Support native fish restoration projects. • Consider installing water developments that benefit wildlife. • Maintain improved roads, primitive roads, and motorized trails outside of the Special Recreation Management Area (SRMA) that serve as important access points. • Maintain primitive roads and motorized trails in the SRMA boundaries that are important for public access. • Manage primitive roads and motorized trails in the SRMA boundaries to maintain the existing character and do not improve primitive roads and motorized trails to a higher transportation standard. • Restrict the construction of new improved roads, primitive roads, and motorized trails within designated areas, allowing for emergencies and valid existing rights, to conserve unfragmented habitat and hunting and fishing opportunities.		
Administration	Pursue partnerships with local groups.		• Pursue partnerships with local clubs for adopt-a-trail programs and to support area maintenance. • Manage issues that impact public safety.		
Information and Education	Supply signs, maps, and brochures to identify recreation resources for the public.		• Provide visitor services, such as trail identification and route signs, information kiosks, and visitor use maps onsite. • Post rules and regulations regarding camping at all developed campgrounds.		
Monitoring	No similar action.		Supported by BLM field staff in conjunction with collaborating partnerships and agencies.		

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Facility Development	No similar action.		• Provide visitor services, such as trail identification, route signs, portal entry kiosks, and access maps. • Develop staging and parking areas to protect resources. • Designate camping sites for both developed and dispersed sites; developed sites may include camping pads, vault toilets, picnic tables, fire pits, and shelters. • Consider an additional trail system that expands into the eastern portion of the RMZ.		
Camping Restrictions	16-day camping limit rules apply.		• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit). • Pack in/pack out policy must be adhered to at all times. • Montana camping rules must be adhered to at all times, including camping within 300 feet of an open road on BLM-administered land.		

Q.4 LOWRY BRIDGE SPECIAL RECREATION MANAGEMENT AREA

Objective: *Participants in visitor assessments report an average 4.0 realization of the targeted experiences and benefit outcome stated in the following table (4.0, on a probability scale, where 1=not at all realized to 5=totally realized). (see* ***Figure Q-3****, Lowry Bridge Special Recreation Management Area)*

		Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Targeted Activities		No similar action (*Lowry Bridge is not a Recreation Management Area [RMA] under this alternative*).	No similar action (*Lowry Bridge is not an RMA under this alternative*).	Camping, picnicking, fishing and boating access.		
Targeted Experiences				• Enjoying the closeness of friends and family. • Releasing or reducing stress. • Savoring the total sensory (sight, sound, and smell) experience of a natural landscape. • Enjoying easy access to natural landscapes. • Escaping everyday responsibilities.		
Targeted Benefits				• Improved appreciation of nature's splendor. • Stronger ties with family and friends. • A more outdoor-oriented lifestyle. • Enhanced ability for visitors to find areas providing recreation experiences and benefits.		
Recreation Setting Characteristics *(refer to page Q-39 for descriptions)*						
Physical	*Remoteness*	No similar action (*Lowry Bridge is not an RMA under this alternative*).	No similar action (*Lowry Bridge is not an RMA under this alternative*).	Rural	Rural	
	Naturalness			Rural	Rural	
	Facilities			Front country	Front country	
Social	*Contacts*			Back country	Back country	
	Group Size			Back country	Back country	

		Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
	Evidence of Use			Rural	Rural	
Operation	*Access*			Front country	Front country	
	Visitor Services			Front country	Front country	
	Management Controls			Front country	Front country	
Management Actions and Allowable Use Decisions						
Visual Resource Management (VRM) Class		No similar action (*Lowry Bridge is not an RMA under this alternative*).	No similar action (*Lowry Bridge is not an RMA under this alternative*).	Manage as VRM Class IV.		Manage as VRM Class III.
Rights-of-Way (ROW)				• Available for ROW location. • Consider whether the function or suitability of the recreation experience and benefits will be impaired.		
Leasable Minerals: Fluids				No similar action.		
Leasable Minerals: Coal and Nonenergy Solids				Open		
Locatable Minerals				Open		
Mineral Materials				Open		
Special Recreation Permits (SRPs)				All SRPs must be beneficial or neutral.		
Forestry				Forest management activities may be undertaken to accomplish resource objectives.		
Implementation Actions						
Management		No similar action (*Lowry Bridge is not an RMA under this alternative*).	No similar action (*Lowry Bridge is not an RMA under this alternative*).	• No firearm restrictions outside developed recreation area. • Designate campsites.		
Administration				Pursue partnerships with local groups to support area maintenance.		
Information and Education				• Provide visitor services, such as information kiosks and directional signs, from the highway. • Post rules and regulations on camping, food storage, and pack in/pack out policy.		
Monitoring				Supported by BLM law enforcement, recreation staff, and volunteer camp hosts.		
Facility Development				• Provide visitor services, such as informational kiosks and directional signs, from main access points. • Expand number of developed campsites.		• Provide informational kiosks and directional signs from main access points. • Maintain developed campsites.
Camping Restrictions				• 3-day camping limit rules apply. • Pack in/pack out policy must be adhered to at all times. • Food storage compliance is required. • Store and dispose of garbage, food, and other possible wildlife attractants.		

Q.5 NORTH MOCCASIN SPECIAL RECREATION MANAGEMENT AREA

Objective: *Participants in visitor assessments report an average 4.0 realization of the targeted experiences and benefit outcome stated in the following table (4.0, on a probability scale, where 1=not at all realized to 5=totally realized). (see* ***Figure Q-4****, North Moccasin Recreation Management Area)*

		Alternative A (No Action)	**Alternative B**	**Alternative C1 (Preferred Alternative)**	**Alternative C2 (Proposed Alternative)**	**Alternative D**
Targeted Activities		No similar action (*North Moccasin is not a Recreation Management Area [RMA] under this alternative*).	No similar action (*North Moccasin is not an RMA under this alternative*).	Riding all-terrain-vehicles (ATVs) and dirt bikes.		No similar action (*see North Moccasin Extensive Recreation Management Area [ERMA]*).
Targeted Experiences				• Developing skills and abilities. • Feeling good about solitude, isolation, and independence. • Feeling good about how this attraction is being used and enjoyed. • Enjoying access to close-to-home outdoor amenities. • Enjoying exploration. • Releasing or reducing stress.		
Targeted Benefits				• Greater opportunity for people with the same skills to recreate in the same place. • Improved mental well-being. • Improved skills with equipment for enjoying the outdoors. • Enhanced sense of personal freedom. • Improved appreciation of public land with access. • Enhanced ability for visitors to find areas providing wanted recreation experiences and benefits.		
Recreation Setting Characteristics *(refer to page Q-39 for descriptions)*						
Physical	*Remoteness*	No similar action (*North Moccasin is not an RMA under this alternative*).	No similar action (*North Moccasin is not an RMA under this alternative*).	Middle country	Middle country	No similar action (*see North Moccasin ERMA*).
	Naturalness			Front country	Front country	
	Facilities			Back country	Back country	
Social	*Contacts*			Back country	Back country	
	Group Size			Primitive/back country	Primitive/back country	
	Evidence of Use			Middle country	Middle country	
Operational	*Access*			Middle country	Middle country	
	Visitor Services			Primitive	Primitive	
	Management Controls			Primitive	Primitive	

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Management Actions and Allowable Use Decisions					
Visual Resource Management Class (VRM) Class	No similar action (*North Moccasin is not an RMA under this alternative*).	No similar action (*North Moccasin is not an RMA under this alternative*).	Manage as VRM Class IV.		No similar action (see *North Moccasin ERMA*).
Rights-of-Way (ROW)			• Available for ROW location. • Consider whether the function or suitability of the recreation experience and benefits will be impaired.		
Leasable Minerals: Fluids			No similar action.		
Leasable Minerals: Coal and Nonenergy Solids			Open		
Locatable Minerals			Open		
Mineral Materials			Open		
Special Recreation Permits (SRPs)			All SRPs must be beneficial or neutral.		
Forestry			Forest management activities may be undertaken to accomplish resource objectives.		
Travel Management			Designate travel as limited to designated routes.		
Implementation Actions					
Management	No similar action (*North Moccasin is not an RMA under this alternative*).	No similar action (*North Moccasin is not an RMA under this alternative*).	• Trail maintenance. • Any additional facilities, such as tables, fire pits, and toilets, will be designed for recreation experiences and benefits. • Develop and designate a trail system that supports both ATVs and dirt bikes.		No similar action (see *North Moccasin ERMA*).
Administration			• Pursue developing collaborative partnerships. • Pursue partnerships with local clubs for adopt-a-trail programs and to support area maintenance.		
Information and Education			• Promote recreational off-highway-vehicle (OHV)-based tourism. • Develop and provide recreation access maps. • Develop and provide informational and regulatory signs and kiosks at major access points and staging areas.		
Monitoring			Supported by BLM law enforcement and recreation staff.		

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Facility Development			• Develop trail systems specifically for ATVs and dirt bikes (width restrictions). • Develop loop systems. • Develop staging and parking areas to protect resources. • Provide visitor services with trail identification, route signs, portal entry kiosks, and access maps.		
Camping Restrictions			• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit). • Pack in/pack out policy must be adhered to at all times.		

Q.6 SNOWY MOUNTAINS SPECIAL RECREATION MANAGEMENT AREA

Objective: *Participants in visitor assessments to report an average 4.0 realization of the targeted experiences and benefit outcome stated in the following table (4.0, on a probability scale, where 1=not at all realized to 5=totally realized). (see* ***Figure Q-5****, Snowy Mountains Recreation Management Area)*

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Targeted Activities	Fishing, hunting, sightseeing, hiking, and picnicking.	No similar action (*Snowy Mountains is not a Recreation Management Area [RMA] under this alternative*).	Hunting, hiking, horseback riding, picnicking, snowshoeing, and cross-country skiing.		No similar action (see *Snowy Mountains Extensive Recreation Management Area [ERMA]*).
Targeted Experiences	No similar action.		• Developing skills and abilities. • Testing endurance. • Savoring the total sensory (sight, sound, and smell) experience of a natural landscape. • Experiencing a greater sense of independence. • Contemplating human's relationship with the land.		
Targeted Benefits	No similar action.		• A more holistic sense of wellness. • Improved outdoor knowledge and self-confidence. • Greater sensitivity to, and awareness of, outdoor aesthetics, nature, and its elegance. • Improved physical fitness and health maintenance. • Increased awareness and protection of natural landscapes.		

		Alternative A (No Action)	**Alternative B**	**Alternative C1 (Preferred Alternative)**	**Alternative C2 (Proposed Alternative)**	**Alternative D**
Recreation Setting Characteristics *(refer to page Q-39 for descriptions)*						
Physical	*Remoteness*	No similar action.	No similar action (*Snowy Mountains is not an RMA under this alternative*).	Front country	Front country	No similar action (*see Snowy Mountains ERMA*).
	Naturalness	No similar action.		Middle country	Middle country	
	Facilities	No similar action.		Back country/middle country	Back country/middle country	
Social	*Contacts*	No similar action.		Middle country	Middle country	
	Group Size	No similar action.		Back country	Back country	
	Evidence of Use	No similar action.		Middle country	Middle country	
Operational	*Access*	No similar action.		Front country	Front country	
	Visitor Services	No similar action.		Primitive/back country	Primitive/back country	
	Management Controls	No similar action.		Primitive/back country	Primitive/back country	
Management Actions and Allowable Use Decisions						
Visual Resource Management (VRM Class)		No similar action.	No similar action (*Snowy Mountains is not an RMA under this alternative*).	• Manage as VRM Class III (390 acres). • Manage as VRM Class IV (80 acres).		No similar action (*see Snowy Mountains ERMA*).
Rights-of-Way (ROW)		No similar action.		• Available for ROW location. • Consider whether the function or suitability of the recreation experience and benefits will be impaired.		
Leasable Minerals: Fluids		No similar action.		No similar action.		
Leasable Minerals: Coal and Nonenergy Solids		Open		Open		
Locatable Minerals		Open		Open		
Mineral Materials		Open		Open		
Special Recreation Permits (SRPs)		No similar action.		All SRPs must be beneficial or neutral.		
Forestry		No similar action.		Forest management activities may be undertaken to accomplish resource objectives.		
Travel Management		No similar action.		Designate travel as limited to designated routes.		
Implementation Actions						
Management		No similar action.	No similar action (*Snowy Mountains is not an RMA under this alternative*).	• Trailhead maintenance. • Develop facilities at staging areas, such as tables, fire pits, and toilets, that positively influence recreation benefits and experiences		No similar action (*see Snowy Mountains ERMA*).
Administration		Formulate a partnership with the State of Montana, Forest Service, and private landowners.		Pursue partnerships with local clubs to support site maintenance.		

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Information and Education	The BLM will use signs, maps, and brochures to identify recreation resources for the public.		• Provide visitor services, such as trail identification and route signage, information kiosks, and visitor use maps onsite. • Post rules and regulations regarding camping at all developed campgrounds.		
Monitoring	No similar action.		Supported by BLM law enforcement and recreation staff.		
Facility Development	No similar action.		• Develop staging and parking areas to protect resources. • Develop and designate camping sites. • Developed sites may include informational kiosks, visitor registers, camping pads, vault toilets, picnic tables, fire pits, and shelters. • 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit). • Pack in/pack out policy must be adhered to at all times.		
Camping Restrictions	16-day camping limit rules apply.				
Travel Management	• The BLM will work with the Lewis and Clark National Forest to provide an access route across BLM-administered land from the Red Hill Road to Half Moon Pass Trail. • The BLM will cooperate with the state, US Department of Agriculture, Forest Service, and private landowners for the continued development and use of the 4-mile cross-country ski trail in the Green/Dry Pole Canyon area along the Crystal Lake Road.		• Develop new trails that access National Forest System lands. • Maintain BLM routes.		

Q.7 ARROW CREEK BACKCOUNTRY CONSERVATION AREA

Objective: *Manage the Arrow Creek Backcountry Conservation Area (BCA) as an intact landscape to provide visitors a primitive recreation experience to benefit hunters for big game and upland birds. (see* ***Figure Q-6****, Arrow Creek Backcountry Conservation Area)*

		Alternative A (No Action)	**Alternative B (BCA)**	**Alternative C1 (Preferred Alternative) (ERMA)**	**Alternative C2 (Proposed Alternative) (BCA)**	**Alternative D**
Targeted Activities		No similar action (*Arrow Creek is not a BCA under this alternative*).	Manage for primitive recreation in support of hunting.	Manage for primitive recreation in support of hunting.	Manage for primitive recreation in support of hunters and anglers.	No similar action (*Arrow Creek is not a BCA under this alternative*).
Targeted Experiences			No similar action.	No similar action.	No similar action.	
Targeted Benefits			No similar action.	No similar action.	No similar action.	
Recreation Setting Characteristics *(refer to page Q-39 for descriptions)*						
Physical	*Remoteness*	No similar action (*Arrow Creek is not a BCA under this alternative*).	Back country	Back country	Back country	No similar action (*Arrow Creek is not a BCA under this alternative*).
	Naturalness		Middle country	Middle country	Middle country	
	Facilities		Primitive	Primitive	Primitive	
Social	*Contacts*		Primitive	Primitive	Primitive	
	Group Size		Primitive	Primitive	Primitive	
	Evidence of Use		Back country	Back country	Back country	
Operational	*Access*		Middle country	Middle country	Middle country	
	Visitor Services		Primitive	Primitive	Primitive	
	Management Controls		Primitive	Primitive	Primitive	
Management Actions and Allowable Use Decisions						
Visual Resource Management (VRM) Class		No similar action (*Arrow Creek is not a BCA under this alternative*).	Manage as VRM Class II.	Manage as VRM Class III.	Manage as VRM Class II.	No similar action (*Arrow Creek is not a BCA under this alternative*).
Rights-of-Way (ROW)			ROW exclusion (locate ROWs outside the boundaries of the ERMA).	Open	ROW Avoidance	
Leasable Minerals: Fluids and Solids			• No surface occupancy (NSO) or use is allowed within the boundary of the BCA (*fluid minerals only*). • Closed to solid leasable minerals.	No similar action.	• Manage as CSU for fluid mineral leasing • Open to non-energy leasables	

	Alternative A (No Action)	**Alternative B (BCA)**	**Alternative C1 (Preferred Alternative) (ERMA)**	**Alternative C2 (Proposed Alternative) (BCA)**	**Alternative D**
Locatable Minerals		Open	Open	Open	
Mineral Materials		Open	Open	• Open to mineral materials (subject to underlying prescriptions for Greater Sage-Grouse management)	
Special Recreation Permits (SRPs)		All SRPs must be beneficial or neutral.	All SRPs must be beneficial or neutral.	All SRPs must be beneficial or neutral.	
Travel Management		Designate travel as limited to designated routes.	Designate travel as limited to designated routes.	• Designate travel as limited to designated routes. • Limited mechanized travel to designated routes, except for game retrieval. • OSV open to existing routes	
Forestry		• Undertake forest management activities to accomplish resource objectives while maintaining the character of the area. • Allow mechanical manipulation, such as with chainsaws and helicopters, while maintaining the character of the area. • Allow the suppression of wildfires using mechanized equipment.	• Undertake forest management activities to accomplish resource objectives while maintaining the character of the area. • Allow mechanical manipulation, such as with chainsaws and helicopters, while maintaining the character of the area. • Allow the suppression of wildfires using mechanized equipment.	• Undertake forest management activities to accomplish resource objectives while maintaining the character of the area. • Allow mechanical manipulation, such as with chainsaws and helicopters, while maintaining the character of the area. • Allow the suppression of wildfires using mechanized equipment.	
Implementation Actions					
Management	No similar action (*Arrow Creek is not a BCA under this alternative*).	• These areas will receive minimal maintenance at dispersed recreation sites. • Any additional facilities, such as tables, fire pits, and toilets, will be provided for recreation experiences and benefits.	• These areas will receive minimal maintenance at dispersed recreation sites. • Any additional facilities, such as tables, fire pits, and toilets, will be provided for recreation experiences and benefits.	• These areas will receive minimal maintenance at dispersed recreation sites. • Any additional facilities, such as tables, fire pits, and toilets, will be provided for recreation experiences and benefits.	No similar action (*Arrow Creek is not a BCA under this alternative*).

	Alternative A (No Action)	Alternative B (BCA)	Alternative C1 (Preferred Alternative) (ERMA)	Alternative C2 (Proposed Alternative) (BCA)	Alternative D
		• Manage for camping opportunities. • Manage for motorized and nonmotorized activities. • Allow prescribed burning to mimic natural processes. • Allow for herbicide application to maintain and restore native vegetation. • Manage for projects to restore riparian and stream functions. • Support native fish restoration projects. • Consider installing water developments that benefit wildlife.	• Manage for camping opportunities. • Manage for motorized and nonmotorized activities. • Allow prescribed burning to mimic natural processes. • Allow for herbicide application to maintain and restore native vegetation. • Manage for projects to restore riparian and stream functions. • Support native fish restoration projects. • Consider installing water developments that benefit wildlife.	• Manage for camping opportunities. • Manage for motorized and nonmotorized activities. • Allow prescribed burning to mimic natural processes. • Allow for herbicide application to maintain and restore native vegetation. • Manage for projects to restore riparian and stream functions. • Support native fish restoration projects. • Consider installing water developments that benefit wildlife.	
Administration		• Manage issues that impact public safety. • Pursue developing collaborative partnerships.	• Manage issues that impact public safety. • Pursue developing collaborative partnerships.	• Manage issues that impact public safety. • Pursue developing collaborative partnerships.	
Information and Education		• Develop a recreation access map and brochure. • Install and maintain directional signs and signs at key access points.	• Develop a recreation access map and brochure. • Install and maintain directional signs and signs at key access points.	• Develop a recreation access map and brochure. • Install and maintain directional signs and signs at key access points.	
Monitoring		Supported by BLM field staff in conjunction with collaborating partnerships and agencies.	Supported by BLM field staff in conjunction with collaborating partnerships and agencies.	Supported by BLM field staff in conjunction with collaborating partnerships and agencies.	
Travel Management		• Provide motorized and nonmotorized access to designated routes. • Maintain improved roads, primitive roads, and motorized trails outside of the ERMA that	Provide motorized and nonmotorized access to designated routes.	Provide motorized and nonmotorized access to designated routes.	

	Alternative A (No Action)	Alternative B (BCA)	Alternative C1 (Preferred Alternative) (ERMA)	Alternative C2 (Proposed Alternative) (BCA)	Alternative D
		serve as important access points. • Maintain primitive roads and motorized trails within the ERMA boundaries that are important for public access. • Manage primitive roads and motorized trails within the ERMA boundaries to maintain the existing character and do not improve primitive roads and motorized trails to a higher transportation standard. • Restrict the construction of new improved roads, primitive roads, and motorized trails within designated areas, allowing for emergencies and valid existing rights, to conserve unfragmented habitat and hunting and fishing opportunities.			
Camping Restrictions		• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit). • Pack in/pack out policy must be adhered to at all times. • Montana camping rules must be adhered to at all times, including camping within 300 feet of an open road on BLM-administered land.	• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit). • Pack in/pack out policy must be adhered to at all times. • Montana camping rules must be adhered to at all times, including camping within 300 feet of an open road on BLM-administered land.	• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit). • Pack in/pack out policy must be adhered to at all times. • Montana camping rules must be adhered to at all times, including camping within 300 feet of an open road on BLM-administered land.	

Q.8 CEMETERY ROAD BACKCOUNTRY CONSERVATION AREA

***Objective:** Manage the Cemetery Road Backcountry Conservation Area (BCA) as an intact landscape to provide visitors with a primitive recreation experience to benefit hunters and hikers. (see **Figure Q-7**, Cemetery Road Backcountry Conservation Area)*

		Alternative A (No Action)	**Alternative B (BCA)**	**Alternative C1 (Preferred Alternative) (ERMA)**	**Alternative C2 (Proposed Alternative) (BCA)**	**Alternative D**
Targeted Activities		No similar action (*Cemetery Road is not a BCA under this alternative*).	Manage for primitive recreation in support of hunting and hiking.	Manage for primitive recreation in support of hunting and hiking.	No similar action (*Cemetery Road is not a BCA under this alternative*).	
Targeted Experiences			No similar action.	No similar action.		
Targeted Benefits			No similar action.	No similar action.		
Recreation Setting Characteristics *(refer to page Q-39 for descriptions)*						
Physical	*Remoteness*	No similar action (*Cemetery Road is not a BCA under this alternative*).	Primitive	Primitive	No similar action (*Cemetery Road is not a BCA under this alternative*).	
	Naturalness		Middle country	Middle country		
	Facilities		Primitive	Primitive		
Social	*Contacts*		Primitive	Primitive		
	Group Size		Primitive	Primitive		
	Evidence of Use		Middle country	Middle country		
Operational	*Access*		Middle country	Middle country		
	Visitor Services		Primitive	Primitive		
	Management Controls		Primitive	Primitive		
Management Actions and Allowable Use Decisions						
Visual Resource Management (VRM) Class		No similar action (*Cemetery Road is not a BCA under this alternative*).	Manage as VRM Class II	Manage as VRM Class IV	No similar action (*Cemetery Road is not a BCA under this alternative*).	
Rights-of-Way (ROW)			ROW exclusion (locate ROWs outside the boundaries of the ERMA)	• Consider whether the function or suitability of the fisheries and the recreation experience and benefits will be impaired		
Leasable Minerals: Fluids and Solids			• No surface occupancy (NSO) or use is allowed within the boundary of the BCA (*fluid minerals only*).	No similar action.		

	Alternative A (No Action)	**Alternative B (BCA)**	**Alternative C1 (Preferred Alternative) (ERMA)**	**Alternative C2 (Proposed Alternative) (BCA)**	**Alternative D**
		• Closed to solid leasable minerals.			
Locatable Minerals		Open	Open	No similar action (*Cemetery Road is not a BCA under this alternative*).	
Mineral Materials		Open	Open		
Special Recreation Permits (SRPs)		All SRPs must be beneficial or neutral.	All SRPs must be beneficial or neutral.		
Travel Management		Designate travel as limited to designated routes.	Designate travel as limited to designated routes.		
Forestry/Fire		• Forest management activities may be undertaken to accomplish resource objectives, while maintaining the character of the area. • Allow mechanical manipulation, such as chainsaws and helicopters, while maintaining the character of the area. • Allow the suppression of wildfires using mechanized equipment.	• Forest management activities may be undertaken to accomplish resource objectives, while maintaining the character of the area. • Allow mechanical manipulation, such as chainsaws and helicopters, while maintaining the character of the area. • Allow the suppression of wildfires using mechanized equipment.		

	Alternative A (No Action)	**Alternative B (BCA)**	**Alternative C1 (Preferred Alternative) (ERMA)**	**Alternative C2 (Proposed Alternative) (BCA)**	**Alternative D**
Implementation Actions					
Management	No similar action (*Cemetery Road is not a BCA under this alternative*).	• These areas will receive minimal maintenance at dispersed recreation sites. • Any additional facilities, such as tables, fire pits, and toilets, will take into consideration recreation experiences and benefits. • Manage for camping opportunities. • Manage for motorized and nonmotorized activities. • Allow prescribed burning to mimic natural processes. • Allow for herbicide application to maintain and restore native vegetation. • Manage for projects to restore riparian and stream functions. • Support native fish restoration projects. • Consider installing water developments that benefit wildlife.	• These areas will receive minimal maintenance at dispersed recreation sites. • Any additional facilities, such as tables, fire pits, and toilets, will take into consideration recreation experiences and benefits. • Manage for camping opportunities. • Manage for motorized and nonmotorized activities. • Allow prescribed burning to mimic natural processes. • Allow for herbicide application to maintain and restore native vegetation. • Manage for projects to restore riparian and stream functions. • Support native fish restoration projects. • Consider installing water developments that benefit wildlife.	No similar action (*Cemetery Road is not a BCA under this alternative*).	No similar action (*Cemetery Road is not a BCA under this alternative*).
Administration		• Manage issues that impact public safety. • Pursue developing collaborative partnerships.	• Manage issues that impact public safety. • Pursue developing collaborative partnerships.		
Information and Education		• Develop a recreation access map and brochure. • Install and maintain directional signs and signs at key access points.	• Develop a recreation access map and brochure. • Install and maintain directional signs and signs at key access points.		

	Alternative A (No Action)	**Alternative B (BCA)**	**Alternative C1 (Preferred Alternative) (ERMA)**	**Alternative C2 (Proposed Alternative) (BCA)**	**Alternative D**
Monitoring		Supported by BLM field staff, in conjunction with collaborating partnerships and agencies.	Supported by BLM field staff, in conjunction with collaborating partnerships and agencies.	No similar action (*Cemetery Road is not a BCA under this alternative*).	
Facility Development		Provide facilities for dispersed and unstructured recreation activities.	Provide facilities for dispersed and unstructured recreation activities.		
Camping Restrictions		• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit). • Pack in/pack out policy must be adhered to at all times. • Montana camping rules must be adhered to at all times, including camping within 300 feet of an open road on BLM-administered land.	• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit). • Pack in/pack out policy must be adhered to at all times. • Montana camping rules must be adhered to at all times, including camping within 300 feet of an open road on BLM-administered land.		

	Alternative A (No Action)	Alternative B (BCA)	Alternative C1 (Preferred Alternative) (ERMA)	Alternative C2 (Proposed Alternative) (BCA)	Alternative D
Travel Management		• Provide motorized and nonmotorized access to designated routes. • Maintain improved roads, primitive roads, and motorized trails outside of the ERMA that serve as important access points. • Maintain primitive roads and motorized trails within the ERMA boundaries that are important for public access. • Manage primitive roads and motorized trails within the ERMA boundaries to maintain the existing character; do not improve primitive roads and motorized trails to a higher transportation standard. • Restrict the construction of new improved roads, primitive roads, and motorized trails in designated areas, allowing for emergencies and valid existing rights, to conserve unfragmented habitat and hunting and fishing opportunities.	Provide motorized and nonmotorized access to designated routes.	No similar action (*Cemetery Road is not a BCA under this alternative*).	

Q.9 CROOKED CREEK BACKCOUNTRY CONSERVATION AREA

Objective: *Manage the Crooked Creek Backcountry Conservation Area (BCA) as an intact landscape to provide visitors a primitive recreation experience to benefit hunters, anglers, and other recreationists. (see* ***Figure Q-8a*** *Alternative B: Crooked Creek Backcountry Conservation Area)*

		Alternative A (No Action)	**Alternative B (BCA)**	**Alternative C1 (Preferred Alternative) (ERMA)**	**Alternative C2 (Proposed Alternative) (BCA)**	**Alternative D**
	Targeted Activities	No similar action (*Crooked Creek is not a BCA under this alternative*).	Manage for primitive recreation in support of hunters and anglers.	Manage for primitive recreation in support of hunters and anglers.	Manage for primitive recreation in support of hunters and anglers.	No similar action (*Crooked Creek is not a BCA under this alternative*).
	Targeted Experiences		No similar action.	No similar action.	No similar action.	
	Targeted Benefits		No similar action.	No similar action.	No similar action.	
Recreation Setting Characteristics *(refer to page Q-39 for descriptions)*						
Physical	*Remoteness*	No similar action (*Crooked Creek is not a BCA under this alternative*).	Middle country	Middle country	Middle country	No similar action (*Crooked Creek is not a BCA under this alternative*).
	Naturalness		Middle country	Middle country	Middle country	
	Facilities		Primitive	Primitive	Primitive	
Social	*Contacts*		Back country	Back country	Back country	
	Group Size		Back country	Back country	Back country	
	Evidence of Use		Middle country	Middle country	Middle country	
Operational	*Access*		Middle country	Middle country	Middle country	
	Visitor Services		Back country	Back country	Back country	
	Management Controls		Back country	Back country	Back country	
Management Actions and Allowable Use Decisions						
	Visual Resource Management (VRM) Class	No similar action (*Crooked Creek is not a BCA under this alternative*).	Manage as VRM Class II.	Manage as VRM Class III.	Manage as VRM Class II.	No similar action (*Crooked Creek is not a BCA under this alternative*).
	Rights-of-Way (ROW)		ROW exclusion (locate ROWs outside ERMA boundaries)	Open	ROW Avoidance	
	Leasable Minerals: Fluids and Solids		• No surface occupancy (NSO) or use is allowed within the boundary of the BCA (*fluid minerals only*). • Closed to solid leasable minerals.	No similar action.	• Manage as CSO for fluid mineral leasing • Open to non-energy leasables	

	Alternative A (No Action)	**Alternative B (BCA)**	**Alternative C1 (Preferred Alternative) (ERMA)**	**Alternative C2 (Proposed Alternative) (BCA)**	**Alternative D**
Locatable Minerals		Open	Open	Open	
Mineral Materials		Open	Open	Open	
Special Recreation Permits (SRPs)		All SRPs must be beneficial or neutral.	All SRPs must be beneficial or neutral.	All SRPs must be beneficial or neutral.	
Travel Management		Designate travel as limited to designated routes.	Designate travel as limited to designated routes.	• Designate travel as limited to designated routes. • Limited mechanized travel to designated routes, except for game retrieval. • OSV open to existing routes	
Forestry/Fire		• Forest management activities may be undertaken to accomplish resource objectives, while maintaining the character of the area. • Allow mechanical manipulation, such as chainsaws and helicopters, while maintaining the character of the area. • Allow the suppression of wildfires using mechanized equipment.	• Forest management activities may be undertaken to accomplish resource objectives, while maintaining the character of the area. • Allow mechanical manipulation, such as chainsaws and helicopters, while maintaining the character of the area. • Allow the suppression of wildfires using mechanized equipment.	• Forest management activities may be undertaken to accomplish resource objectives, while maintaining the character of the area. • Allow mechanical manipulation, such as chainsaws and helicopters, while maintaining the character of the area. • Allow the suppression of wildfires using mechanized equipment.	
Implementation Actions					
Management	No similar action (*Crooked Creek is not a BCA under this alternative*).	• These areas will receive minimal maintenance at dispersed recreation sites. • Any additional facilities, such as tables, fire pits, and toilets, will take into consideration recreation experiences and benefits. • Manage for camping opportunities.	• These areas will receive minimal maintenance at dispersed recreation sites. • Any additional facilities, such as tables, fire pits, and toilets, will take into consideration recreation experiences and benefits. • Manage for camping opportunities.	• These areas will receive minimal maintenance at dispersed recreation sites. • Any additional facilities, such as tables, fire pits, and toilets, will take into consideration recreation experiences and benefits. • Manage for camping opportunities.	No similar action (*Crooked Creek is not a BCA under this alternative*).

	Alternative A (No Action)	Alternative B (BCA)	Alternative C1 (Preferred Alternative) (ERMA)	Alternative C2 (Proposed Alternative) (BCA)	Alternative D
		• Manage for motorized and nonmotorized activities. • Allow prescribed burning to mimic natural processes. • Allow for herbicide application to maintain and restore native vegetation. • Manage for projects to restore riparian and stream functions. • Support native fish restoration projects. • Consider installing water developments that benefit wildlife.	• Manage for motorized and nonmotorized activities. • Allow prescribed burning to mimic natural processes. • Allow for herbicide application to maintain and restore native vegetation. • Manage for projects to restore riparian and stream functions. • Support native fish restoration projects. • Consider installing water developments that benefit wildlife.	• Manage for motorized and nonmotorized activities. • Allow prescribed burning to mimic natural processes. • Allow for herbicide application to maintain and restore native vegetation. • Manage for projects to restore riparian and stream functions. • Support native fish restoration projects. • Consider installing water developments that benefit wildlife.	
Administration		• Manage issues that impact public safety. • Pursue developing collaborative partnerships.	• Manage issues that impact public safety. • Pursue developing collaborative partnerships.	• Manage issues that impact public safety. • Pursue developing collaborative partnerships.	
Information and Education		• Develop a recreation access map and brochure. • Install and maintain directional signs and signs at key access points.	• Develop a recreation access map and brochure. • Install and maintain directional signs and signs at key access points.	• Develop a recreation access map and brochure. • Install and maintain directional signs and signs at key access points.	
Monitoring		Supported by BLM field staff, in conjunction with collaborating partnerships and agencies.	Supported by BLM field staff, in conjunction with collaborating partnerships and agencies.	Supported by BLM field staff, in conjunction with collaborating partnerships and agencies.	
Facility Development		Provide facilities for dispersed and unstructured recreation activities.	Provide facilities for dispersed and unstructured recreation activities.	Provide facilities for dispersed and unstructured recreation activities.	
Camping Restrictions		• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit).	• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit).	• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit).	

	Alternative A (No Action)	Alternative B (BCA)	Alternative C1 (Preferred Alternative) (ERMA)	Alternative C2 (Proposed Alternative) (BCA)	Alternative D
		• Pack in/pack out policy must be adhered to at all times. • Montana camping rules must be adhered to at all times, including camping within 300 feet of an open road on BLM-administered land.	• Pack in/pack out policy must be adhered to at all times. • Montana camping rules must be adhered to at all times, including camping within 300 feet of an open road on BLM-administered land.	• Pack in/pack out policy must be adhered to at all times. • Montana camping rules must be adhered to at all times, including camping within 300 feet of an open road on BLM-administered land.	
Travel Management		• Provide motorized and nonmotorized access to designated routes. • Maintain improved roads, primitive roads, and motorized trails outside of the ERMA that serve as important access points • Maintain primitive roads and motorized trails within the ERMA boundaries that are important for public access • Manage primitive roads and motorized trails within the ERMA boundaries to maintain the existing character; do not improve primitive roads and motorized trails to a higher transportation standard • Restrict the construction of new improved roads, primitive roads, and motorized trails in designated areas, allowing for emergencies and valid existing rights, to conserve unfragmented habitat and hunting and fishing opportunities	Provide motorized and nonmotorized access to designated routes.	Provide motorized and nonmotorized access to designated routes.	

Q.10 JUDITH EXTENSIVE RECREATION MANAGEMENT AREA

Objective: *Manage the Judith Extensive Recreation Management Area (ERMA) fishing reservoirs for visitors to provide dispersed and unstructured recreation. (see* ***Figure Q-9****, Judith Extensive Management Area)*

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Targeted Activities	Manage 11 undeveloped recreation sites associated with these fishing reservoirs: • Buffalo Wallow • Holland • Jakes • Crooked Creek • Dry Blood • South Fork Dry Blood • Drag • Payola • Fritzner • Mauland • Box Elder/Vogel These sites will receive minimal maintenance.	No similar action (*Judith is not an ERMA under this alternative*).	Manage 10 undeveloped recreation sites associated with these fishing reservoirs: • Box Elder/Vogel* • Drag • Dry Blood • Fritzner • Holland* • Payola • South Fork Dry Blood • Bubs • Whisker* • Wolf Coulee #1 *The embankments for Box Elder/Vogel, Holland, and Whisker Reservoirs are not on property administered by the BLM, but the water feature behind the embankment is on BLM-administered land.	Manage eight undeveloped recreation sites associated with these fishing reservoirs: • Drag • Dry Blood • Fritzner • Holland* • Payola • South Fork Dry Blood • Bubs • Whisker* *The embankments for Holland and Whisker Reservoirs are not on property administered by the BLM, but the water feature behind the embankment is on BLM-administered land. Fisheries potential in active recreation management sites may vary over time depending on sediment accumulation and overall condition of the reservoir which directly affects suitability of these reservoirs to maintain fisheries.	
Targeted Experiences	No similar action.		No similar action.		
Targeted Benefits	No similar action.		No similar action.		
Management Actions and Allowable Use Decisions					
Visual Resource Management (VRM) Class	No similar action.	No similar action (*Judith is not an ERMA under this alternative*).	• Manage as VRM Class III (450 acres). • Manage as VRM Class IV (550 acres).		• Manage as VRM Class II (100 acres). • Manage as VRM Class III (300 acres). • Manage as VRM Class IV (400 acres).

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Rights-of-Way (ROW)	No similar action.		• Available for ROW location • Consider if the function or suitability of the fisheries and the recreation experience and benefits will be impaired		
Leasable Minerals: Fluids	No similar action.		No similar action.		
Leasable Minerals: Coal and Nonenergy Solids	Open		Same as Alternative A.		
Locatable Minerals	Allow and encourage rockhounding opportunities.		Open		
Mineral Materials	Open		Same as Alternative A.		
Special Recreation Permits (SRPs)	All BLM-administered land is available at the discretion of the Authorized Officer, as long as permittees maintain a special use permit and meet BLM regulation requirements.		All SRPs must be beneficial or neutral.		
Travel Management	No similar action.		Designate travel as limited to designated routes.		
Forestry	No similar action.		Forest management activities may be undertaken to accomplish resource objectives.		
Implementation Actions					
Management	• These sites will receive minimal maintenance. • Any additional facilities, such as tables, fire pits, and toilets, will be coordinated through partnerships and volunteers.	No similar action (*Judith is not an ERMA under this alternative*).	• These sites will receive minimal maintenance. • Any additional facilities, such as tables, fire pits, and toilets, will be provided in consideration of recreation experiences and benefits.		
Administration	The BLM will develop recreation sites for fishing when there is an opportunity to share funding with other agencies, such as Montana Fish, Wildlife and Parks (MFWP).		• Manage embankment issues that impact public safety. • Pursue developing collaborative partnerships.		

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Information and Education	Recreation access maps, brochures, and signs at key public access points and at undeveloped sites.		• Develop a recreation access map and brochure. • Maintain signs at key access points.		
Travel Management	No similar action.		Provide motorized access to reservoirs.		
Facility Development	Provide dispersed and unstructured recreation.		Same as Alternative A.		
Camping Restrictions	• 16-day camping limit. • Pack in/pack out garbage policy.		Same as Alternative A, plus 10-day caching limit (caching limit included in camping limit).		

Q.11 JUDITH MOUNTAINS BACKCOUNTRY CONSERVATION AREA

Objective: *Manage the Judith Mountains Backcountry Conservation Area (BCA) to provide visitors dispersed recreation for primarily nonmotorized activities. (see* ***Figure Q-10****, Judith Mountains Backcountry Conservation Area)*

		Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Targeted Activities		No similar action (see *Judith Mountains Special Recreation Management Area [SRMA]*).	Manage nonmotorized activities with no new developments.	No similar action (see *Judith Mountains SRMA*).		
Targeted Experiences			No similar action.			
Targeted Benefits						
Recreation Setting Characteristics *(refer to page Q-39 for descriptions)*						
Physical	*Remoteness*	No similar action (see *Judith Mountains SRMA*).	Front country	No similar action (see *Judith Mountains SRMA*).		
	Naturalness		Rural			
	Facilities		Back country			
Social	*Contacts*		Middle country			
	Group Size		Back country			
	Evidence of Use		Front country			
Operational	*Access*		Front country			
	Visitor Services		Primitive/back country			
	Management Controls		Back country			

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Management Actions and Allowable Use Decisions					
Visual Resource Management (VRM) Class	No similar action (see *Judith Mountains SRMA*).	Manage as VRM Class II.	No similar action (see *Judith Mountains SRMA*).		
Rights-of-Way (ROW)		ROW exclusion (locate ROWs outside the boundaries of the ERMA).			
Leasable Minerals: Fluids and Solids		• ***NSO BCAs/ERMAs (Fluid Minerals Only)*** No surface occupancy or use is allowed within the boundary of the BCA • Closed to solid leasable minerals			
Locatable Minerals		Open			
Mineral Materials		Open			
Special Recreation Permits (SRPs)		All SRPs must be beneficial or neutral.	No similar action (see *Judith Mountains SRMA*).		
Travel Management		Designate travel as limited to designated routes.			
Forestry		• Forest management activities may be undertaken to accomplish resource objectives, while maintaining the character of the area. • Allow mechanical manipulation, such as chainsaws and helicopters, while maintaining the character of the area. • Allow the suppression of wildfires using mechanized equipment.			
Implementation Actions					
Management	No similar action (see *Judith Mountains SRMA*).	• These areas will receive minimal maintenance at dispersed recreation sites. • Any additional facilities, such as tables, fire pits, and toilets, will	No similar action (see *Judith Mountains SRMA*).		

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
		be provided in consideration of recreation experiences and benefits. • Manage for camping opportunities. • Manage for motorized and nonmotorized activities. • Allow prescribed burning to mimic natural processes. • Allow for herbicide application to maintain and restore native vegetation. • Manage for projects to restore riparian and stream functions. • Support native fish restoration projects. • Consider installing water developments that benefit wildlife.			
Administration		• Manage issues that impact public safety • Pursue developing collaborative partnerships			
Information and Education		• Develop a recreation access map and brochure. • Install and maintain directional signs and signs at key access points.			
Monitoring		Supported by BLM field staff in conjunction with collaborating partnerships and agencies.			
Travel Management		• Provide motorized and nonmotorized access to designated routes • Maintain improved roads, primitive roads, and motorized			

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
		trails outside of the ERMA that serve as important access points • Maintain primitive roads and motorized trails within the ERMA boundaries that are important for public access • Manage primitive roads and motorized trails within the ERMA boundaries to maintain the existing character; do not improve primitive roads and motorized trails to a higher transportation standard • Restrict the construction of new improved roads, primitive roads, and motorized trails in designated areas, allowing for emergencies and valid existing rights, to conserve unfragmented habitat and hunting and fishing opportunities			
Facility Development		Provide facilities for dispersed and unstructured recreation activities.			
Camping Restrictions		• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit). • Pack in/pack out policy must be adhered to at all times. • Montana camping rules must be adhered to at all times, including camping within 300 feet of an open road on BLM-administered land.			

Q.12 NORTH MOCCASIN EXTENSIVE RECREATION MANAGEMENT AREA

Objective: *Manage the North Moccasin Extensive Recreation Management Area (ERMA) for visitors to engage in OHV activities, specifically for all-terrain-vehicles (ATVs), dirt bikes, and snowmobiles. (see* ***Figure Q-4****, North Moccasin Recreation Management Area)*

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Targeted Activities	No similar action (*North Moccasin is not an ERMA under this alternative*).		No similar action (see *North Moccasin Special Recreation Management Area SRMA*).		ATVs, dirt bikes, and snowmobiles.
Targeted Experiences					No similar action.
Targeted Benefits					No similar action.
Management Actions and Allowable Use Decisions					
Visual Resource Management (VRM) Class	No similar action (*North Moccasin is not an ERMA under this alternative*).		No similar action (see *North Moccasin SRMA*).		Manage as VRM Class IV.
Rights-of-Way (ROW)					• Available for ROW location. • Consider whether the function or suitability of the recreation experience and benefits will be impaired.
Leasable Minerals: Fluids					No similar action.
Leasable Minerals: Coal and Nonenergy Solids					Open
Locatable Minerals					Open
Mineral Materials					Open
Special Recreation Permits (SRPs)					All SRPs must be beneficial or neutral.
Forestry					Forest management activities may be undertaken to accomplish resource objectives.
Travel Management					Designate travel as limited to designated routes.
Implementation Actions					
Management	No similar action (*North Moccasin is not an ERMA under this alternative*).		No similar action (see *North Moccasin SRMA*).		• Trail maintenance. • Any additional facilities, such as tables, fire pits, and toilets, will take into consideration recreation experiences and benefits.

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Administration					Pursue developing collaborative partnerships.
Information and Education					• Promote recreational off-highway vehicle (OHV)-based tourism. • Develop recreation access maps. • Develop informational and regulatory signs and kiosks.
Monitoring					Conducted by BLM law enforcement and recreation staff.
Facility Development					• Provide visitor services, such as trail identification, route signage, portal entry kiosks, and access maps. • Develop staging and parking areas to protect resources.
Camping Restrictions					• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit). • Pack in/pack out policy must be adhered to at all times.
Travel Management					Develop maps for ATV and dirt bike use.

Q.13 SNOWY MOUNTAINS EXTENSIVE RECREATION MANAGEMENT AREA

Objective: *Manage the Snowy Mountains Extensive Recreation Management Area (ERMA) to provide visitor staging areas for legal access into the Big Snowy Mountains. (see* ***Figure Q-5****, Snowy Mountains Recreation Management Area)*

	Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Targeted Activities	No similar action (*Snowy Mountains is not a Recreation Management Area (RMA) under this alternative*).		No similar action (*see Snowy Mountains Special Recreation Management Area [SRMA]*).		Access into the Snowy Mountains for nonmotorized recreationists.
Targeted Experiences					No similar action.
Targeted Benefits					No similar action.
Management Actions and Allowable Use Decisions					
Visual Resource Management (VRM Class	No similar action (*Snowy Mountains is not an RMA under this alternative*).		No similar action (*see Snowy Mountains SRMA*).		• Manage as VRM Class II (390 acres). • Manage as VRM Class IV (80 acres).
Rights-of-Way (ROW)					• Available for ROW location. • Consider if the function or suitability of the recreation experience and benefits will be impaired.
Leasable Minerals: Fluids					No similar action.
Leasable Minerals: Coal and Nonenergy Solids					Open
Locatable Minerals					Open
Mineral Materials					Open
Special Recreation Permits (SRPs)					All SRPs must be beneficial or neutral.
Forestry					Forest management activities may be undertaken to accomplish resource objectives.
Implementation Actions					
Management	No similar action (*Snowy Mountains is not an RMA under this alternative*).		No similar action (*see Snowy Mountains SRMA*).		• Trailhead maintenance. • Any additional facilities, such as tables, fire pits, and toilets, will take into consideration recreation experiences and benefits.
Administration					Pursue developing collaborative partnerships
Information and Education					Develop informational kiosks with maps.
Monitoring					Conducted by law enforcement and recreation staff.
Facility Development					• Develop staging/parking areas to protect resources. • Designate camping sites.

	Alternative A (No Action)	**Alternative B**	**Alternative C1 (Preferred Alternative)**	**Alternative C2 (Proposed Alternative)**	**Alternative D**
Camping Restrictions					• 16-day camping limit rules apply. • 10-day caching limit (caching limit included in camping limit). • Pack in/pack out policy must be adhered to at all times.
Travel Management					Maintain BLM routes where needed.

Q.14 RECREATION SETTING CHARACTERISTICS MATRIX

	Primitive Classification	***Back Country Classification***	***Middle Country Classification***	***Front Country Classification***	***Rural Classification***	***Urban Classification***
Physical Component – Qualities of the Landscape						
Remoteness (approx. distance from routes)	More than 0.5 mile from either mechanized or motorized routes	Within 0.5 mile of mechanized routes	Within 0.5 mile of four-wheel drive vehicle, all-terrain-vehicle (ATV), and motorcycle routes	Within 0.5 mile of low-clearance or passenger vehicle routes (including unpaved county roads and private land routes)	Within 0.5 mile of paved/primary roads and highways	Within 0.5 mile of streets and roads in municipalities and along highways
Naturalness (landscape texture, form, line, color)	Undisturbed natural landscape	Natural landscape with any modifications in harmony with surrounds and not visually obvious or evident (e.g., stock ponds and trails)	Character of the natural landscape retained; a few modifications contrast with character of the landscape (e.g., fences and primitive roads)	Character of the natural landscape partially modified, but none overpower natural landscape (e.g., roads, structures, and utilities)	Character of the natural landscape considerably modified (e.g., agriculture, residential, or industrial)	Urbanized developments dominate landscape
Facilities	No structures; foot/horse and water trails only	Developed trails made mostly of native materials, such as log bridges; structures are rare and isolated	Maintained and marked trails, simple trailhead developments, and basic toilets	Rustic facilities such as campsites, restrooms, trailheads, and interpretive displays	Modern facilities such as campgrounds, group shelters, boat launches, and occasional exhibits	Elaborate full-service facilities such as laundries, restaurants, and grocery stores
Social Component – Qualities Associated with Use						
Contacts (avg. with any other group)	Fewer than 3 encounters per day at campsites and fewer than 6 encounters per day on travel routes	3 to 6 encounters per day off travel routes (e.g., campsites) and 7 to 15 encounters per day on travel routes	7 to 14 encounters per day off travel routes (e.g., staging areas) and 15 to 29 encounters per day on travel routes	15 to 29 encounters per day off travel routes (e.g., campgrounds) and 30 or more encounters per day on travel routes	People seem to be generally everywhere	Busy place with other people constantly in view
Group Size (average, other than your own)	Fewer than or equal to 3 people per group	4 to 6 people per group	7 to 12 people per group	13 to 25 people per group	26 to 50 people per group	Greater than 50 people per group
Evidence of Use	No alterations of the natural terrain; footprints only observed; sounds of people rare	Areas of alteration uncommon; little surface vegetation wear observed; sounds of people infrequent	Small areas of alteration; surface vegetation showing wear, with some bare soils; sounds of people occasionally heard	Small areas of alteration prevalent; surface vegetation gone, with compacted soils observed; sounds of people regularly heard	A few large areas of alteration; surface vegetation absent, with hardened soils; sounds of people frequently heard	Large areas of alteration prevalent; some erosion; constantly hear people
Operational Component – Conditions Created by Management and Controls over Recreation Use						
Access (type of travel allowed)	Foot, horse, and nonmotorized float boat travel	Mountain bikes and perhaps other mechanized use, but all are nonmotorized	Four-wheel drives, all-terrain vehicles, dirt bikes, or snowmobiles, in addition to nonmotorized mechanized use	Two-wheel drive vehicles predominant, but also four-wheel drives and nonmotorized, mechanized use	Ordinary highway auto and truck traffic is characteristic	Wide variety of street vehicles, and highway traffic is ever-present
Visitor Services (and information)	No maps or brochures available onsite; staff rarely present to provide onsite assistance	Basic maps, staff infrequently present (e.g., seasonally and high use periods) to provide onsite assistance	Area brochures and maps, staff occasionally present (e.g., most weekends) to provide onsite assistance	Information materials describe recreation areas and activities, staff periodically present (e.g., weekdays and weekends)	Information described to the left, plus experience and benefit descriptions; staff regularly present (e.g., almost daily)	Information described to the left, plus regularly scheduled on-site outdoor demonstrations and clinics
Management Controls	No onsite posting and signing of visitor regulations, interpretive information, or ethics; few use restrictions	Basic user regulations at key access points; minimum use restrictions	Some regulatory and ethics signing; moderate use restrictions (e.g., camping and human waste)	Rules, regulations, and ethics clearly posted; use restrictions, limitation, and closures	Regulations strict and ethics prominent; use may be limited by permits and reservations	Enforcement, in addition to rules to reduce conflicts, hazards, and resource damage

Source: IM No. 2011-004, Revised Recreation and Visitor Services Land Use Planning Guidance, Updated Checklist, and Three Land Use Planning Templates. Attachment 5, Recreation Setting Characteristics Matrix. BLM, Washington, DC. October 14, 2010.

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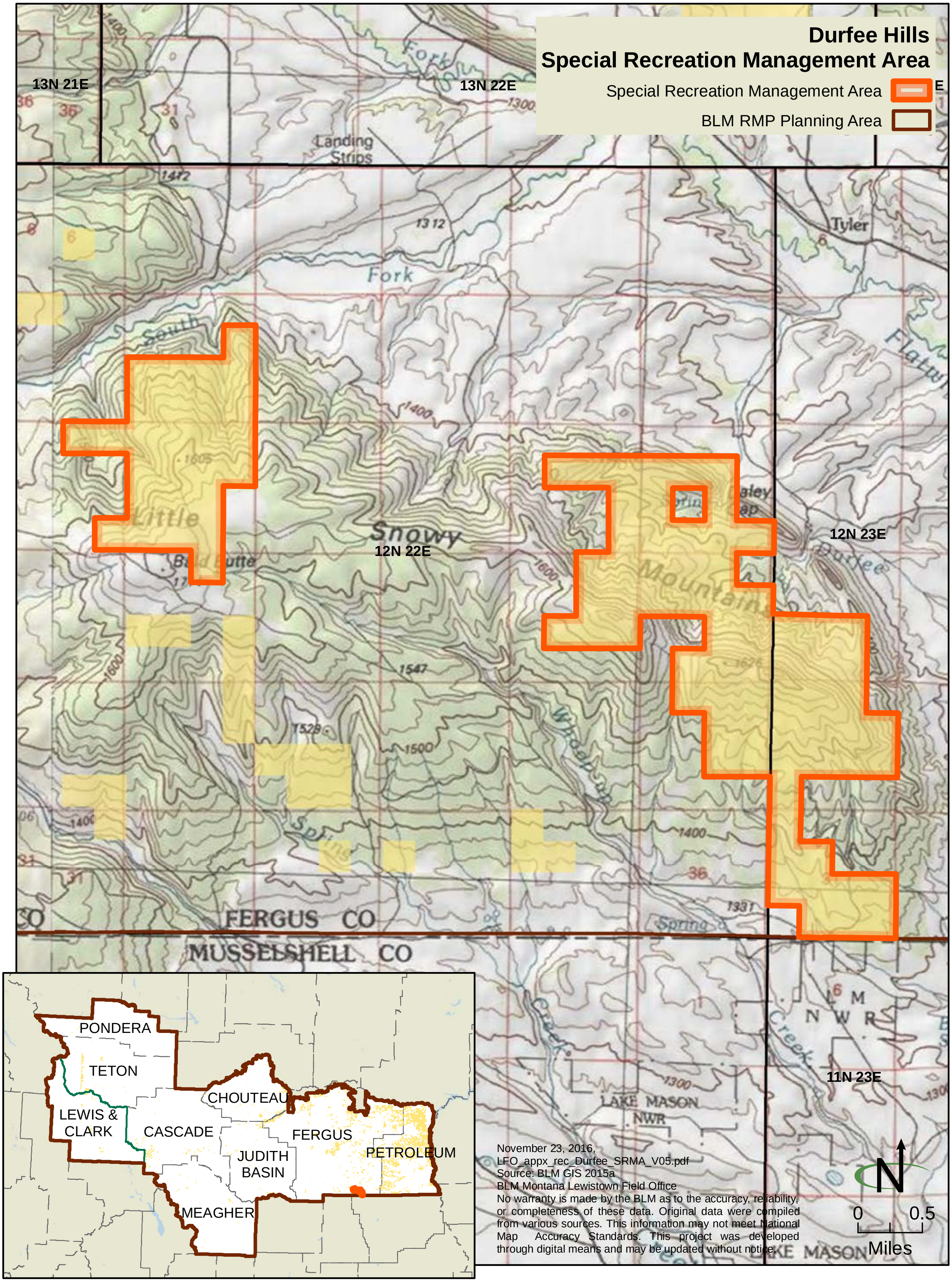
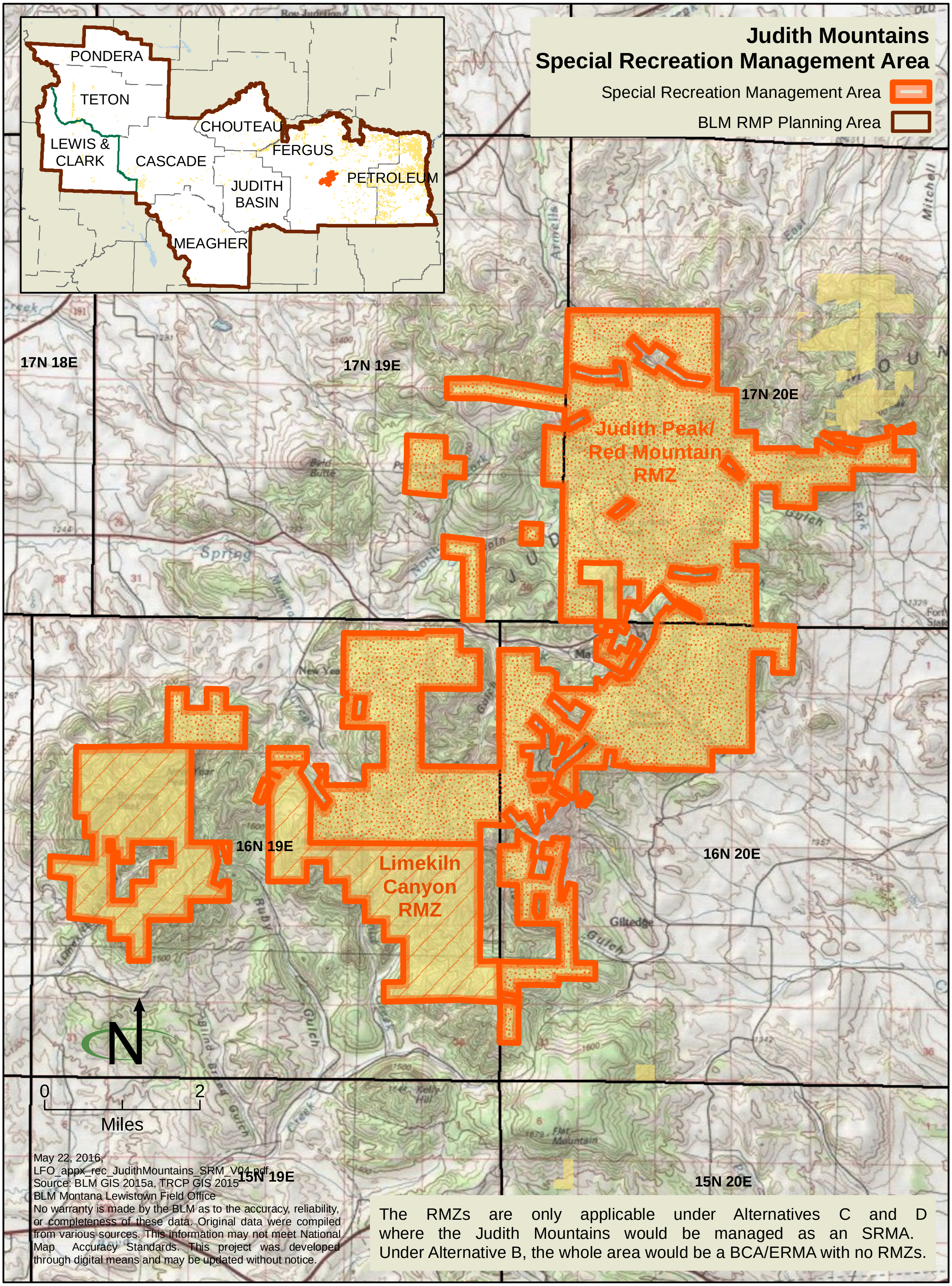


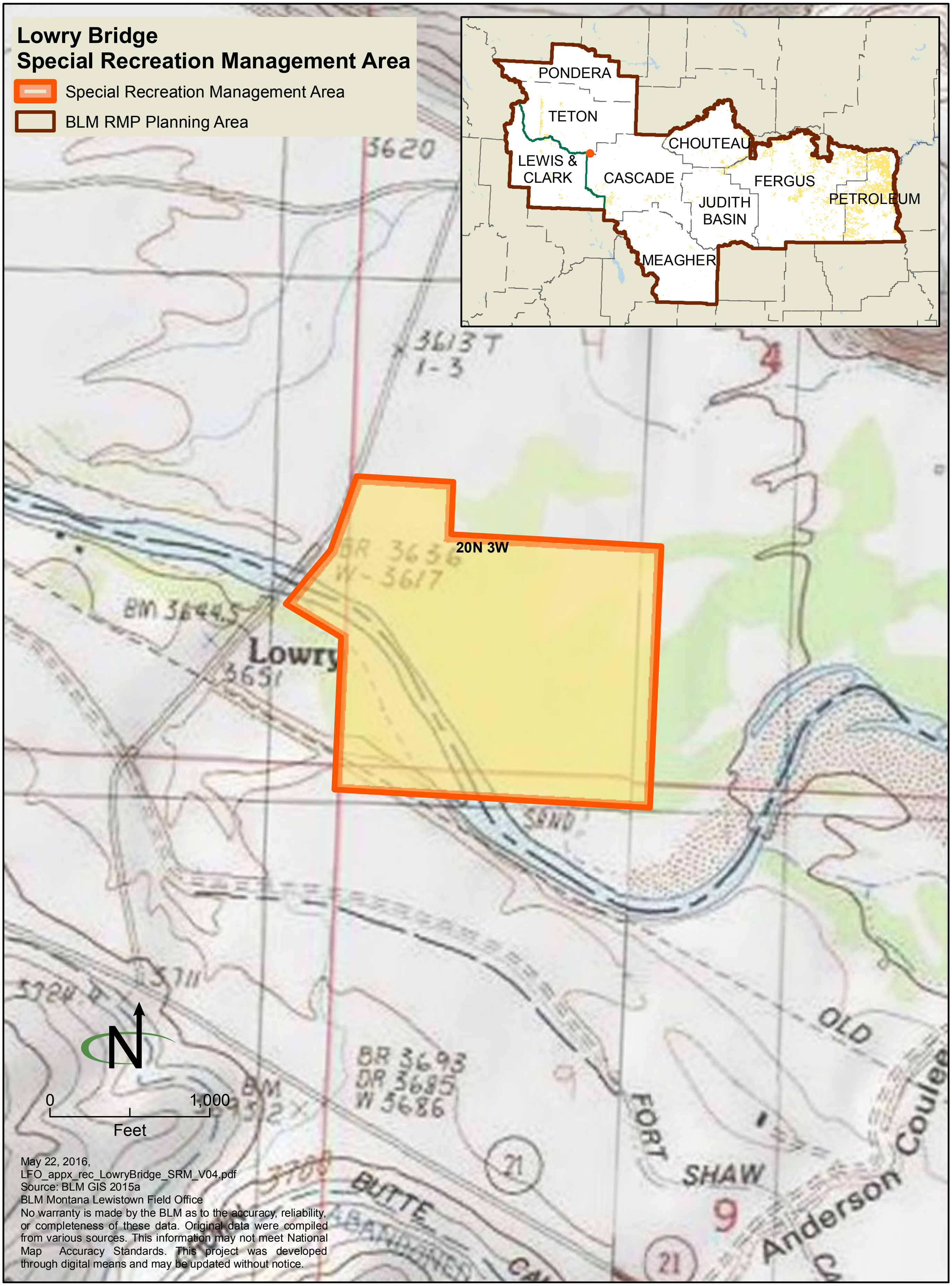
November 23, 2016,
LFO_appx_rec_Durfee_SRMA_V05.pdf
Source: BLM GIS 2015a
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.



Judith Mountains
Special Recreation Management Area

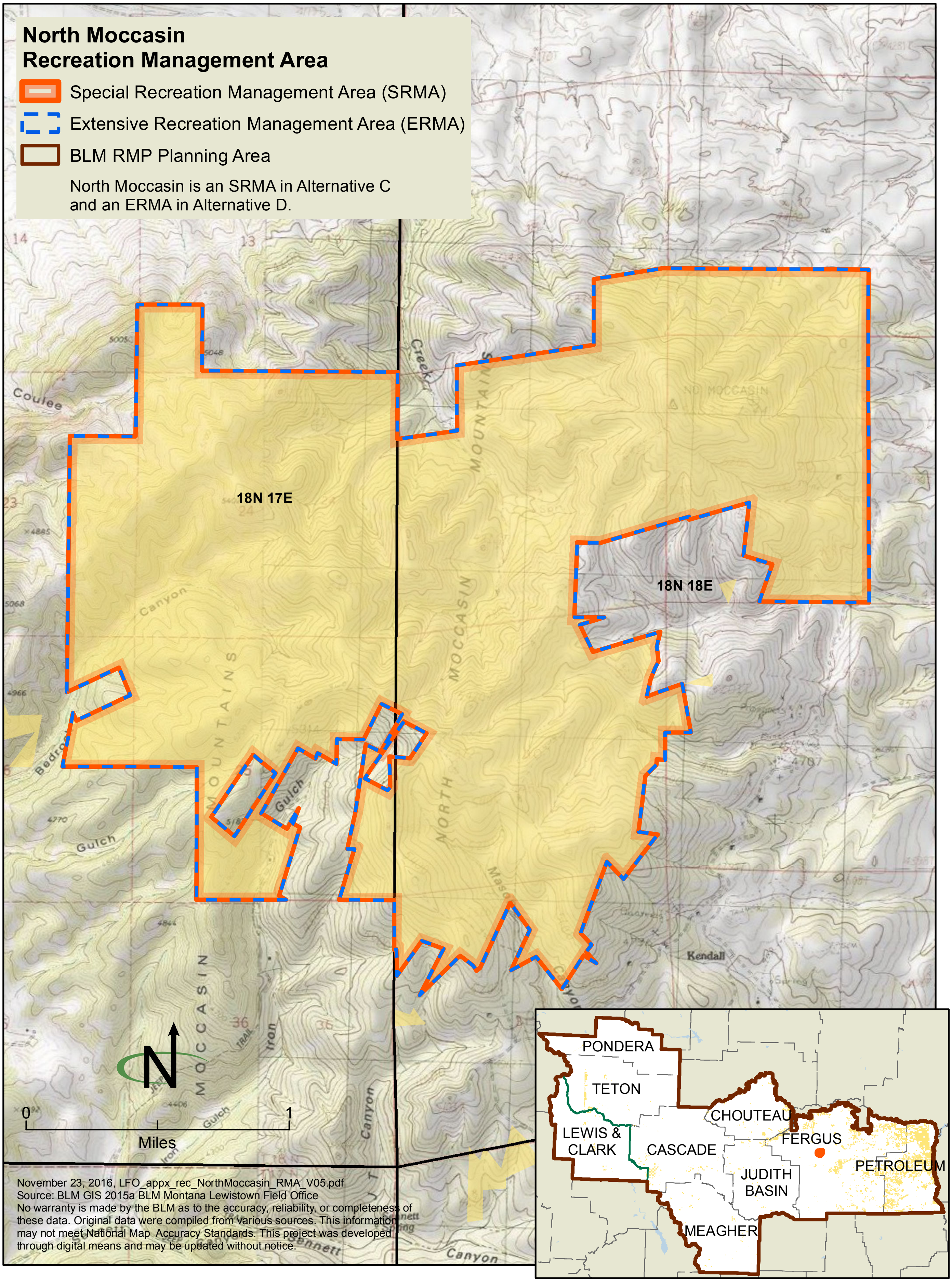
May 22, 2016,
LFO_appx_rec_JudithMountains_SRM_V04.pdf
Source: BLM GIS 2015a, TRCP GIS 2015
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.

The RMZs are only applicable under Alternatives C and D where the Judith Mountains would be managed as an SRMA. Under Alternative B, the whole area would be a BCA/ERMA with no RMZs.



May 22, 2016,
LFO_appx_rec_LowryBridge_SRM_V04.pdf
Source: BLM GIS 2015a
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.

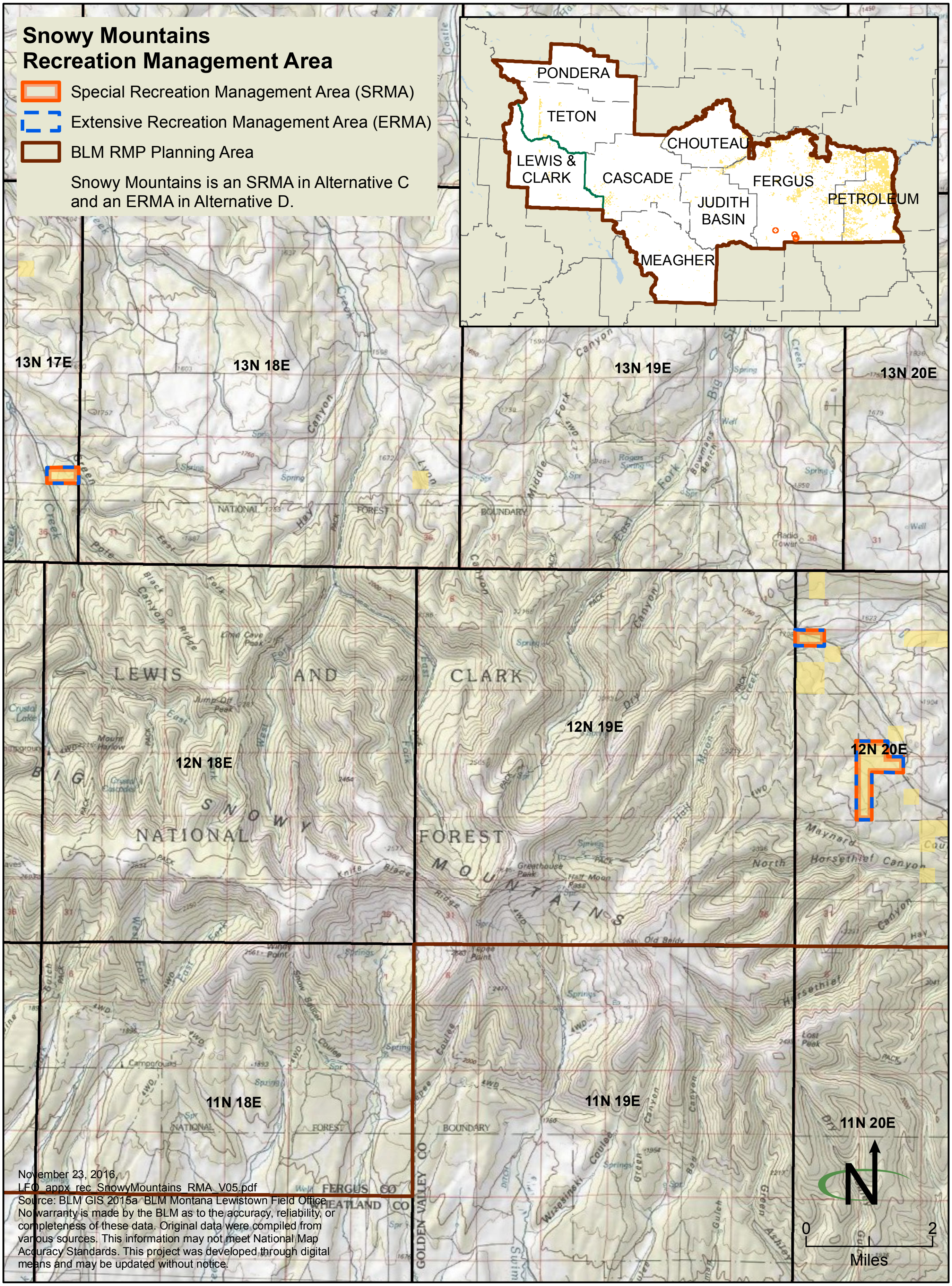
North Moccasin Recreation Management Area



- ▨ Special Recreation Management Area (SRMA)
- ▭ Extensive Recreation Management Area (ERMA)
- ▭ BLM RMP Planning Area

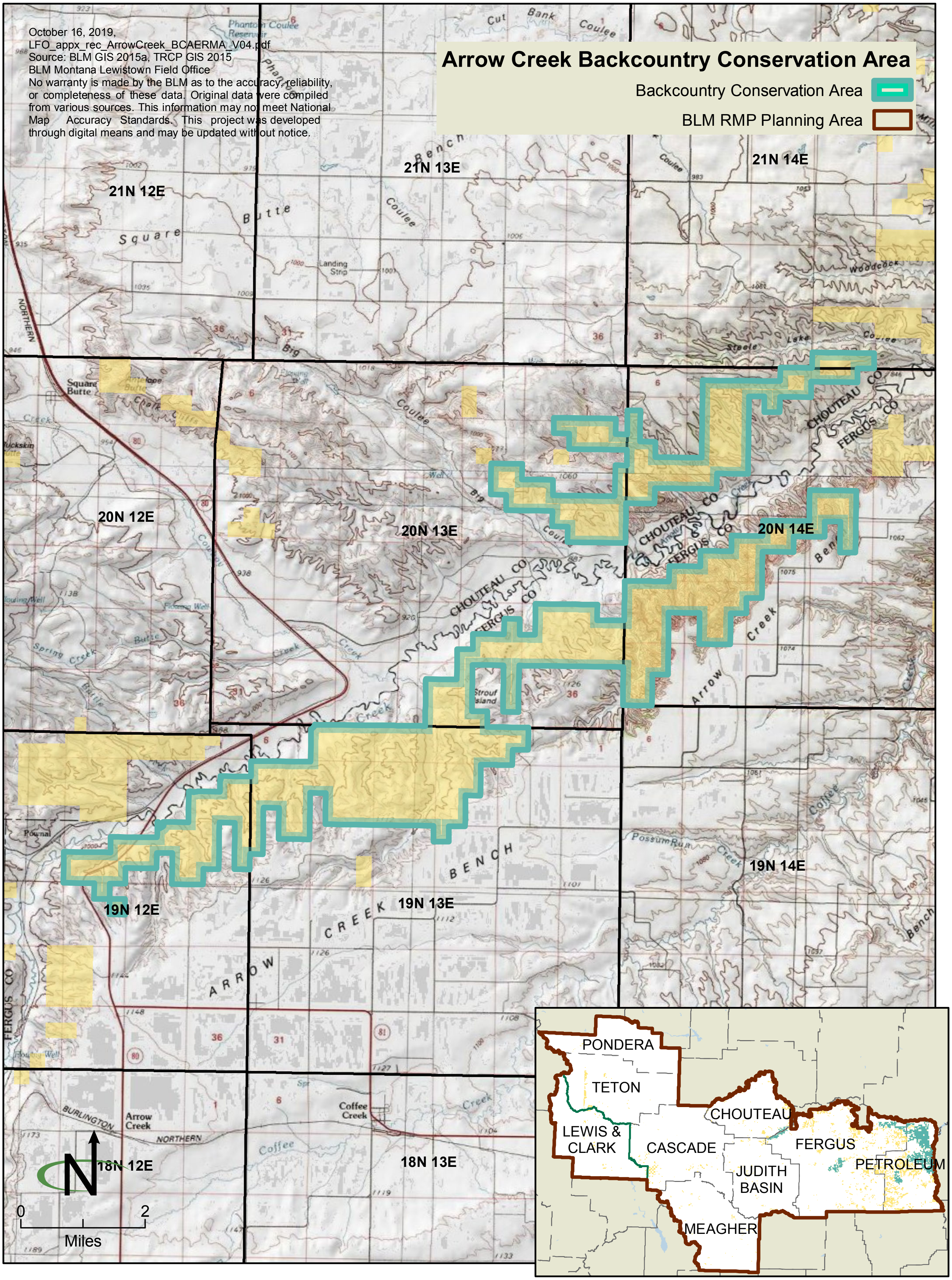
North Moccasin is an SRMA in Alternative C and an ERMA in Alternative D.

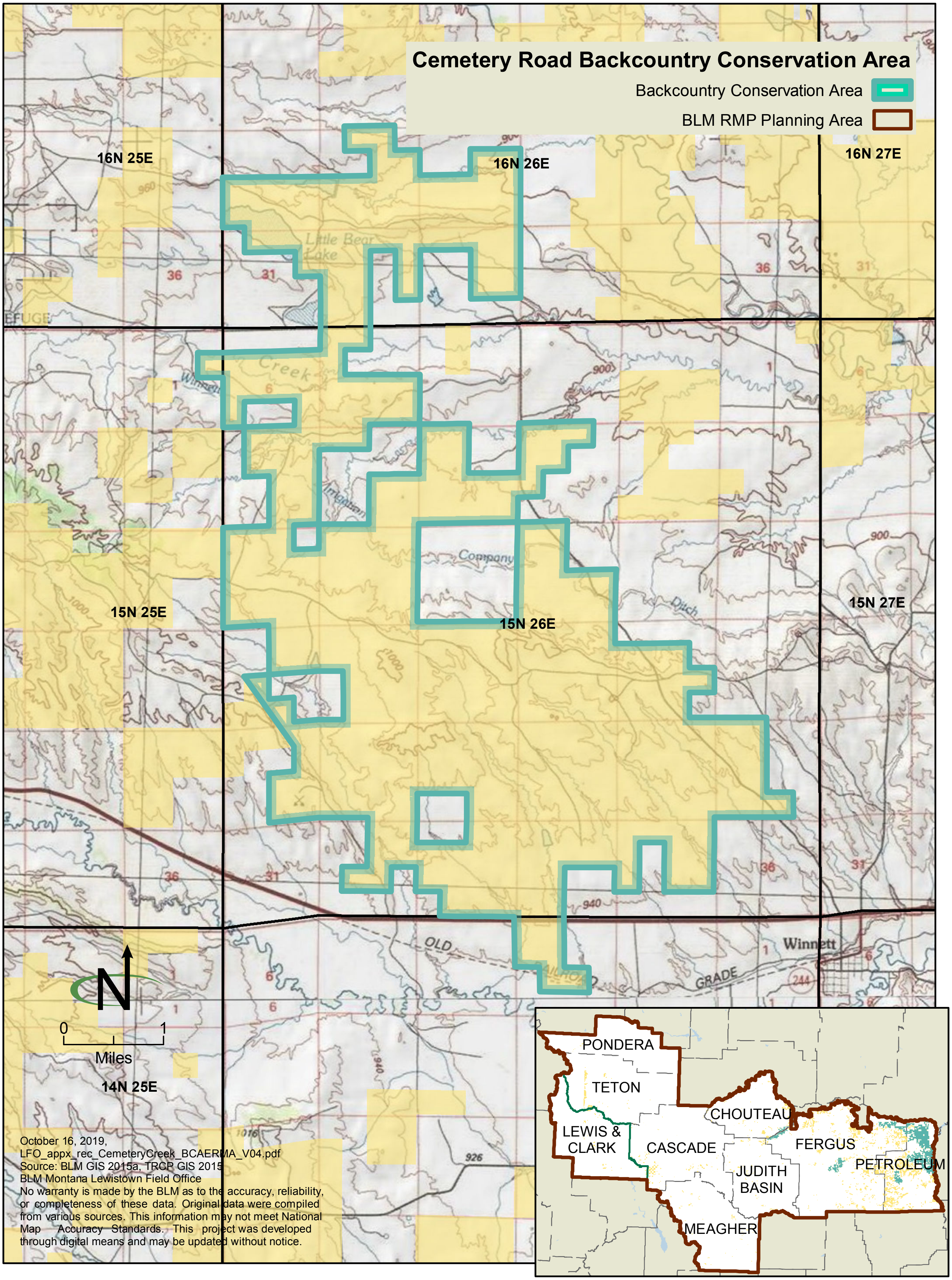
November 23, 2016, LFO_appx_rec_NorthMoccasin_RMA_V05.pdf
Source: BLM GIS 2015a BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.



Snowy Mountains Recreation Management Area

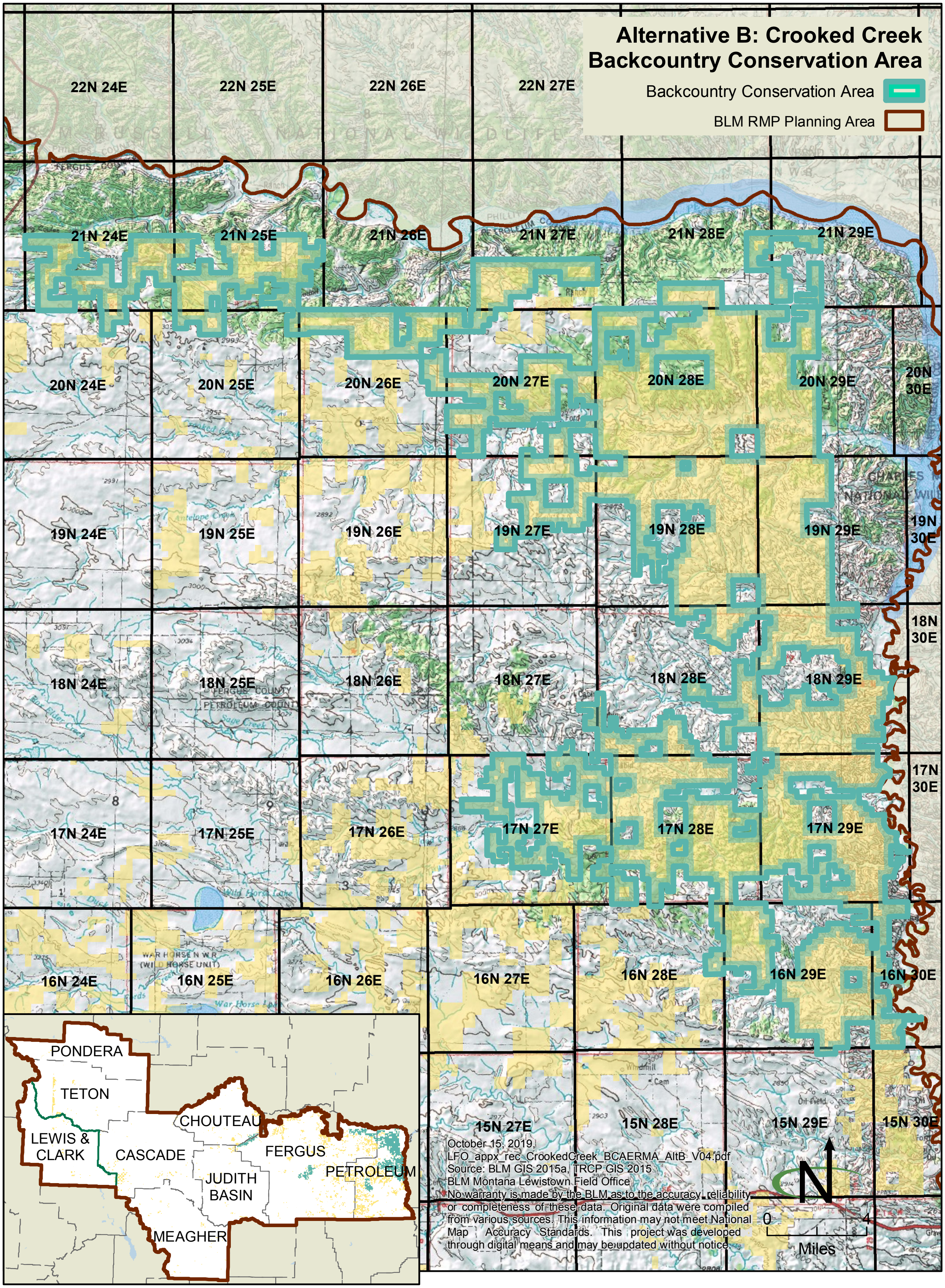
November 23, 2016,
LFO_appx_rec_SnowyMountains_RMA_V05.pdf
Source: BLM GIS 2015a BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.


October 16, 2019,
LFO_appx_rec_ArrowCreek_BCAERMA_V04.pdf
Source: BLM GIS 2015a, TRCP GIS 2015
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.
Arrow Creek Backcountry Conservation Area
Backcountry Conservation Area
BLM RMP Planning Area
21N 12E
21N 13E
21N 14E
20N 12E
20N 13E
20N 14E
19N 12E
19N 13E
19N 14E
18N 12E
18N 13E
CHOUTEAU CO
FERGUS CO
Square Butte
Arrow Creek
Coffee Creek
Strouf Island
ARROW CREEK BENCH
0
2
Miles
PONDERA
TETON
LEWIS & CLARK
CASCADE
CHOUTEAU
FERGUS
PETROLEUM
JUDITH BASIN
MEAGHER



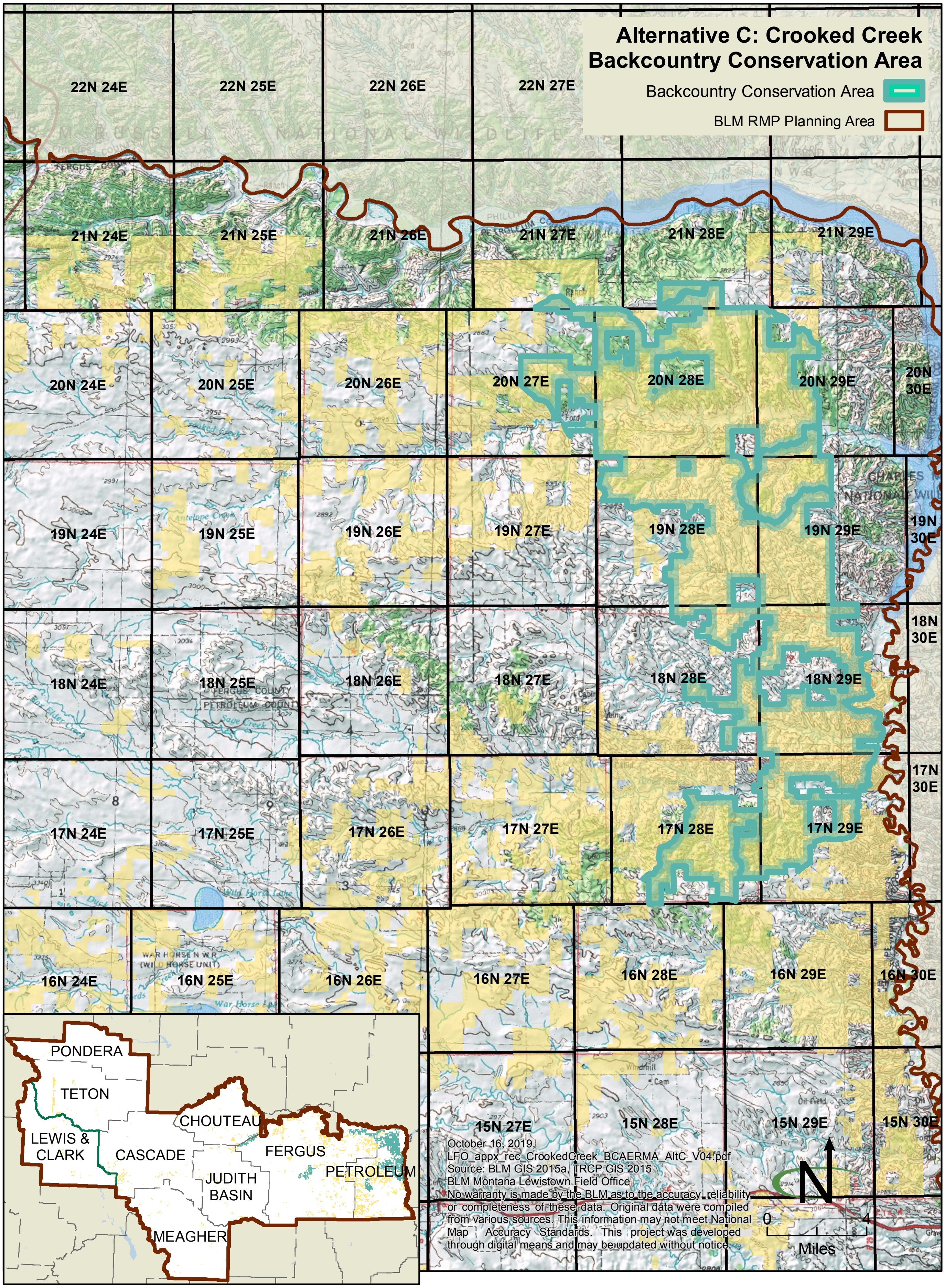
Cemetery Road Backcountry Conservation Area

October 16, 2019,
LFO_appx_rec_CemeteryCreek_BCAERMA_V04.pdf
Source: BLM GIS 2015a, TRCP GIS 2015
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.

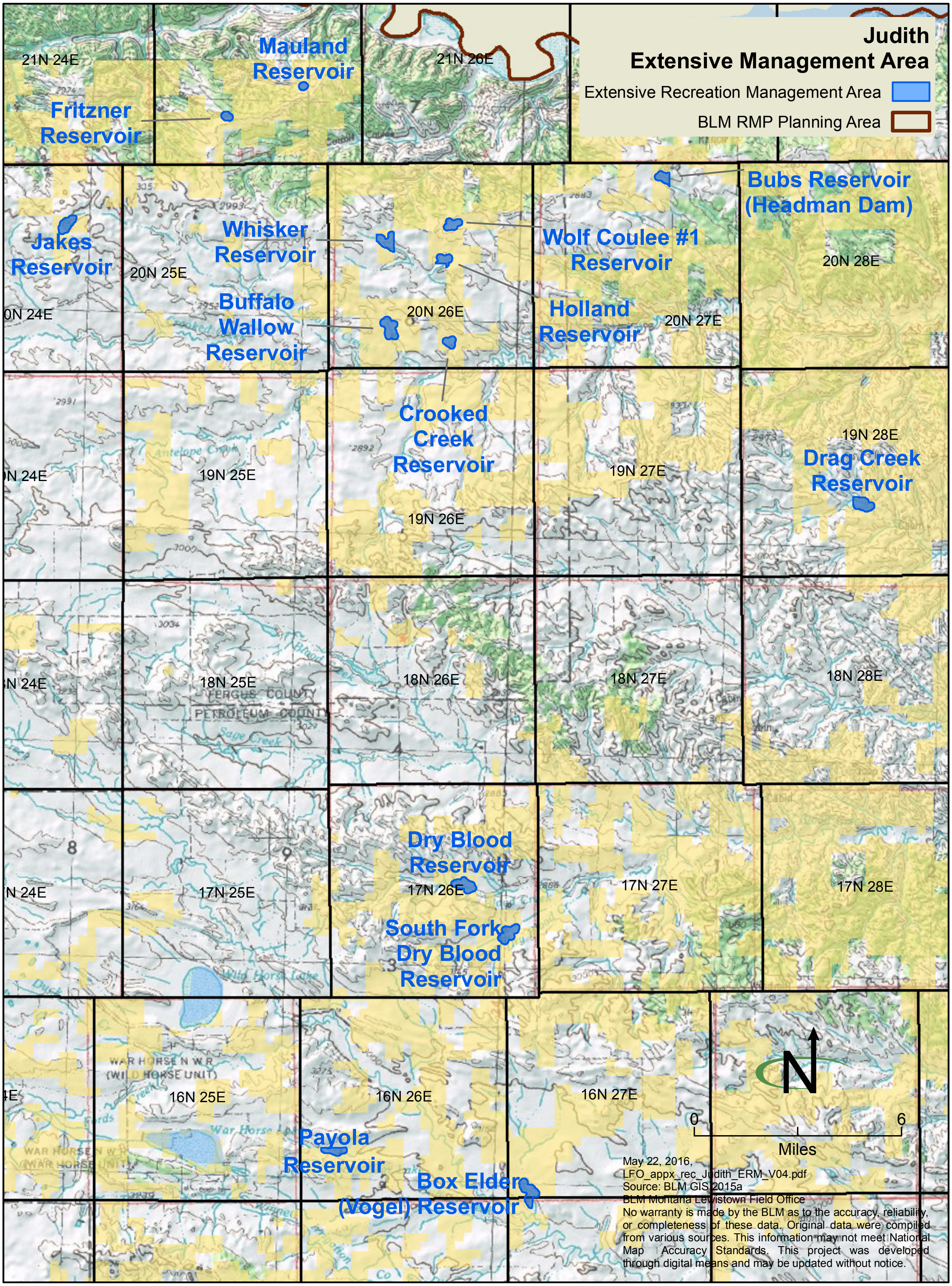


Alternative B: Crooked Creek Backcountry Conservation Area

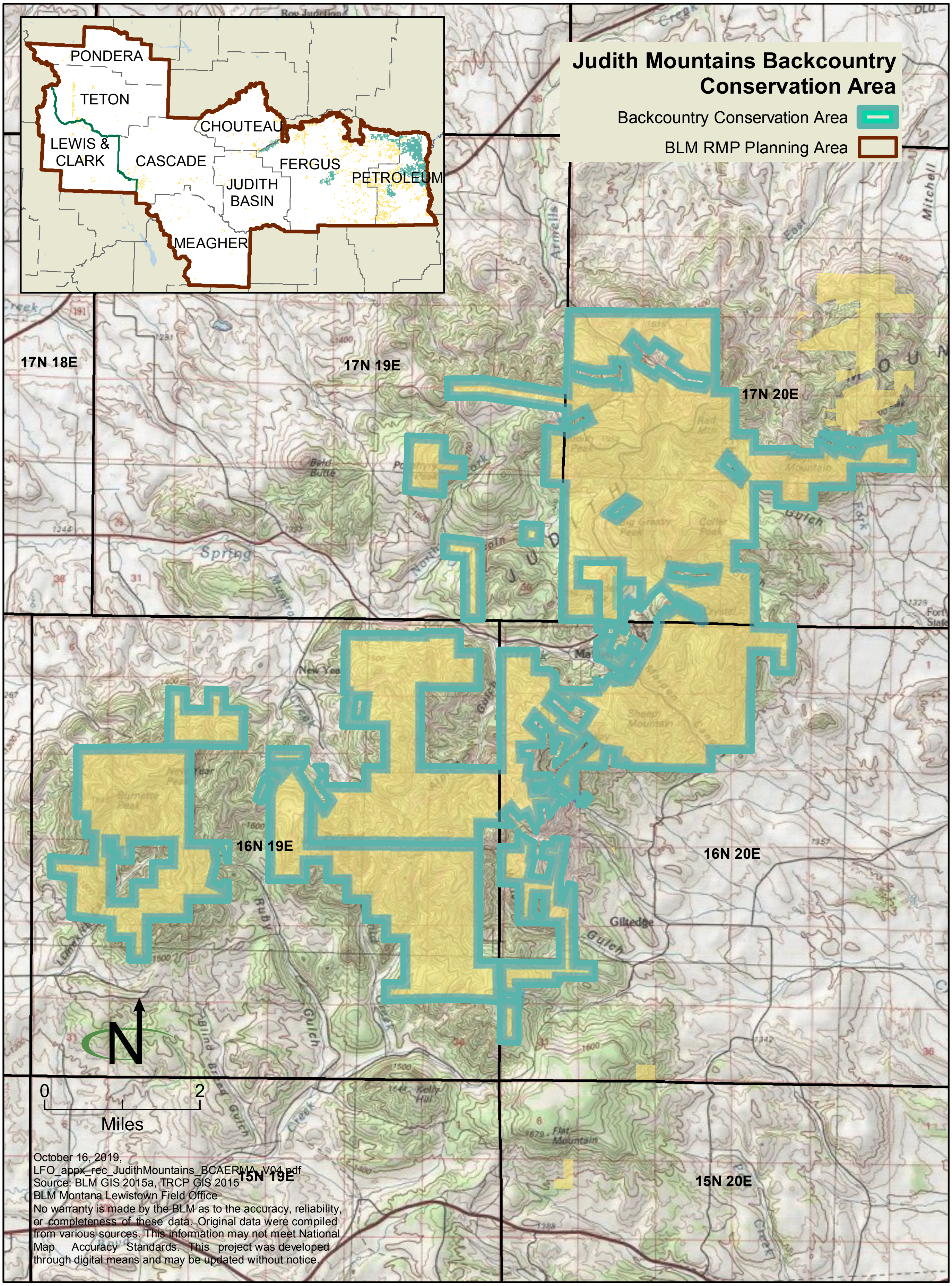
October 15, 2019,
LFO_appx_rec_CrookedCreek_BCAERMA_AltB_V04.pdf
Source: BLM GIS 2015a, TRCP GIS 2015
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.



October 16, 2019,
LFO_appx_rec_CrookedCreek_BCAERMA_AltC_V04.pdf
Source: BLM GIS 2015a, TRCP GIS 2015
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.



May 22, 2016,
LFO_appx_rec_Judith_ERM_V04.pdf
Source: BLM GIS 2015a
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.



Judith Mountains Backcountry Conservation Area

October 16, 2019,
LFO_appx_rec_JudithMountains_BCAERMA_V04.pdf
Source: BLM GIS 2015a, TRCP GIS 2015
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.

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Appendix R

Land Ownership Adjustment Categories

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Appendix R. Land Ownership Adjustment Categories

Category 1 (Retention): BLM-administered lands in Category 1 are identified for retention and include lands with high resource values. Included in this category are areas such as ACECs, WSAs, NHTs, lands acquired through the Land and Water Conservation Fund, and other congressionally designated areas. Acquisition of lands or interests in lands would receive priority if located within and/or adjacent to BLM-administered land in Category 1 provided the lands meet one or more of the Land Adjustment Criteria and Factors Considered described below. Lands within Category 1 would not be transferred from BLM management by any method for the life of the plan; however, with the exception of lands acquired with funds from the Land and Water Conservation Fund, transfers to other public agencies would be considered where improved management efficiency would result.

Category 2 (Retention-Limited Disposal): BLM-administered lands in Category 2 are generally identified for retention in public ownership. Limited disposal actions involving BLM-administered lands within this category could occur. BLM-administered lands designated as Category 2 would not be available for sale. However, BLM-administered lands within this category could be exchanged for lands or interests in lands. In addition, parcels of BLM-administered land within Category 2 may be identified for transfer under the R&PP, for public agency jurisdictional transfer, or for State Indemnity Selections, on a case-by-case basis. BLM-administered lands in Category 2 may contain significant resource values protected by law or policy, and any disposal action is contingent upon prior review and approval. If actions cannot be taken to adequately mitigate impacts from disposal of those lands, the parcels would be retained.

Category 3 (Disposal): BLM-administered lands in Category 3 are identified for disposal through any method, including sale. These lands generally are surrounded by private land with no legal access, or have been selected for disposal by the BLM due to management issues. BLM-administered lands in Category 3 would be available for disposal through exchange for lands or interests in lands. Those parcels which meet the sale criteria of section 203(a)(1) of FLPMA could be made available for sale. However, disposal of Category 3 lands by exchange would have priority over disposal by sale. In addition, parcels within Category 3 may be identified for transfer under the R&PP, for public agency jurisdictional transfer, or for State Indemnity Selections, on a case-by-case basis. Some BLM-administered lands in Category 3 may contain significant resource values protected by law or policy and any disposal action is contingent upon prior review and approval. If actions cannot be taken to adequately mitigate impacts from disposal of those lands, those parcels would be retained.

The BLM develops most RMPs to guide management of land over 20 or more years. The Secretary's policy is, generally, not to dispose of public lands. However, for long term planning purposes, the situation may arise, especially in areas where public land tracts are isolated and difficult to manage, where it is useful for BLM to identify these areas as suitable for leaving public ownership. Any decision regarding whether or not to dispose of a particular parcel under any particular authority, whether by sale under section 203 of FLPMA; exchange under section 206 of FLPMA; or patent under the Recreation and Public Purposes Act of 1926, as amended, for instance, would require site-specific consideration and analysis, including, but not limited to considerations of access, popular recreational uses, the existence of cultural resources or habitat for species, and whether or not such a parcel, isolated from the rest of the public lands, might be better suited for non-federal ownership.

Section 203 of FLPMA specifies that BLM may only sell a tract of public land under section 203 if the tract is identified as a result of land use planning, pursuant to section 202 of FLPMA, as meeting one or more of the disposal criteria listed in section 203. The RMP determination that a particular tract meets one or more of the criteria for disposal through sale does not necessarily mean the BLM will sell or dispose of the land by another means. Rather, the process for disposing of public lands under FLPMA Section 203 (Sales) or Section 206 (Exchanges) or any other authority is a lengthy multi-decisional process requiring comprehensive site-specific analysis, and cadastral, cultural and other resource surveys, when necessary, prior to the sale or disposition of a tract of public land. BLM bases the determination whether a tract meets one or more of the section 203 disposal criteria on its ongoing inventory of all public lands and their resources conducted pursuant to section 201 of FLPMA. The requirement under section 203 that this determination be made through land use planning is consistent with the section 202 requirement to manage public lands under land use plans, where these represent a broader scope, longer-term approach to management of public lands in an entire planning area that takes into account a wide variety of possible uses of the public lands.

In preparation for this land use planning initiative, the BLM conducted an inventory of the public land in the planning area to determine whether there are any tracts that meet one or more of the FLPMA section 203 criteria for disposal out of Federal ownership:

(1) Such tract because of its location or other characteristics is difficult and uneconomic to manage as part of the public lands, and is not suitable for management by another Federal department or agency; or

(2) Such tract was acquired for a specific purpose and the tract is no longer required for that or any other Federal purpose; or

(3) Disposal of such tract will serve important public objectives, including but not limited to, expansion of communities and economic development, which cannot be achieved prudently or feasibly on land other than public land and which outweigh other public objectives and values, including, but not limited to, recreation and scenic values, which would be served by maintaining such tract in Federal ownership.

Criteria listed herein are not in order or priority and all land tenure decisions must be in the public's interest to proceed:

- Class A Scenery
- Accessibility of the land for public uses
- Greater sage-grouse PHMA and GHMA
- Key big game seasonal habitat
- Habitat for game animals, fisheries, nesting/breeding
- Lands with a substantial amount of public investments in facilities and the potential for recovering those investments

- Land exchanges would be considered in lands with wilderness characteristics units to improve access and contiguous nature
- Consider the values of the forest type, habitat diversity, and potential for carbon sequestration
- Recreation and (recreation access) sites and areas with high recreational values
- National Conservation Areas and National Monuments and other statutorily authorized designations (e.g. Conservation Management Areas)
- Action would overall improve access to public land and/or not weaken an existing public access

Other factors to consider:

- Difficulty or cost of administration (manageability)
- Suitability of the land for management by another federal agency
- Significance of the decision in stabilizing business, social and economic conditions, and/or lifestyles
- Encumbrances, including but not limited to,
  - R&PP and small tract leases
  - Other leases and permits
  - Consistency of the decision with cooperative agreements and plans or policies of other agencies
  - Suitability and need for change in land ownership or use for purposes including but not limited to: community expansion or economic development, such as industrial, residential or agricultural (other than grazing) developments

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Appendix S

Withdrawal Segregations

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Appendix S. Withdrawal Segregations

The withdrawals described below are common to all alternatives. These withdrawals overlap in some instances, so acres cannot be summed.

Segregated Effect	Total Federal Mineral Estate (acres)
Surface estate is closed to disposition under the public land laws. All surface and subsurface estates are closed to disposition under the mining laws and all subsurface estate is closed to mineral leasing applications. These areas include (but are not limited to): • Grass Range Missile Silo (JVP) • US Air Force Facilities • Fort Shaw Townsite • Simms Town	70
Surface and subsurface estates are closed to disposition under the mining laws and all subsurface estate is closed mineral leasing applications. This includes (but is not limited to) the Rocky Mountain Front.	93,600
Surface estate is closed to disposition under the public land laws. All surface and subsurface estates are closed to disposition under the mining laws. These areas include (but are not limited to): • Freezeout Lake Waterfowl Management Area • Crystal Cave • Blacktail Paleontological Area • Sun River Project • Muddy Creek Project • Fort Peck Dam and Reservoir	17,500
Withdrawn for administration by another federal agency (e.g., USFWS, Forest Service, BOR, and BIA).	20,400
Power site classifications: Surface estate is closed to disposition under the public land laws. Open to mineral leasing with special stipulations from the Federal Energy Regulatory Commission and open to location and entry under the Mining Law with concurrence from the Federal Energy Regulatory Commission.	3,900
Open only to homestead, mining and special reclamation entry.	15,700

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Appendix 7

Areas of Critical Environmental Concern: Report on the Application of the Relevance and Importance Criteria

NATIONAL SYSTEM OF PUBLIC LANDS
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

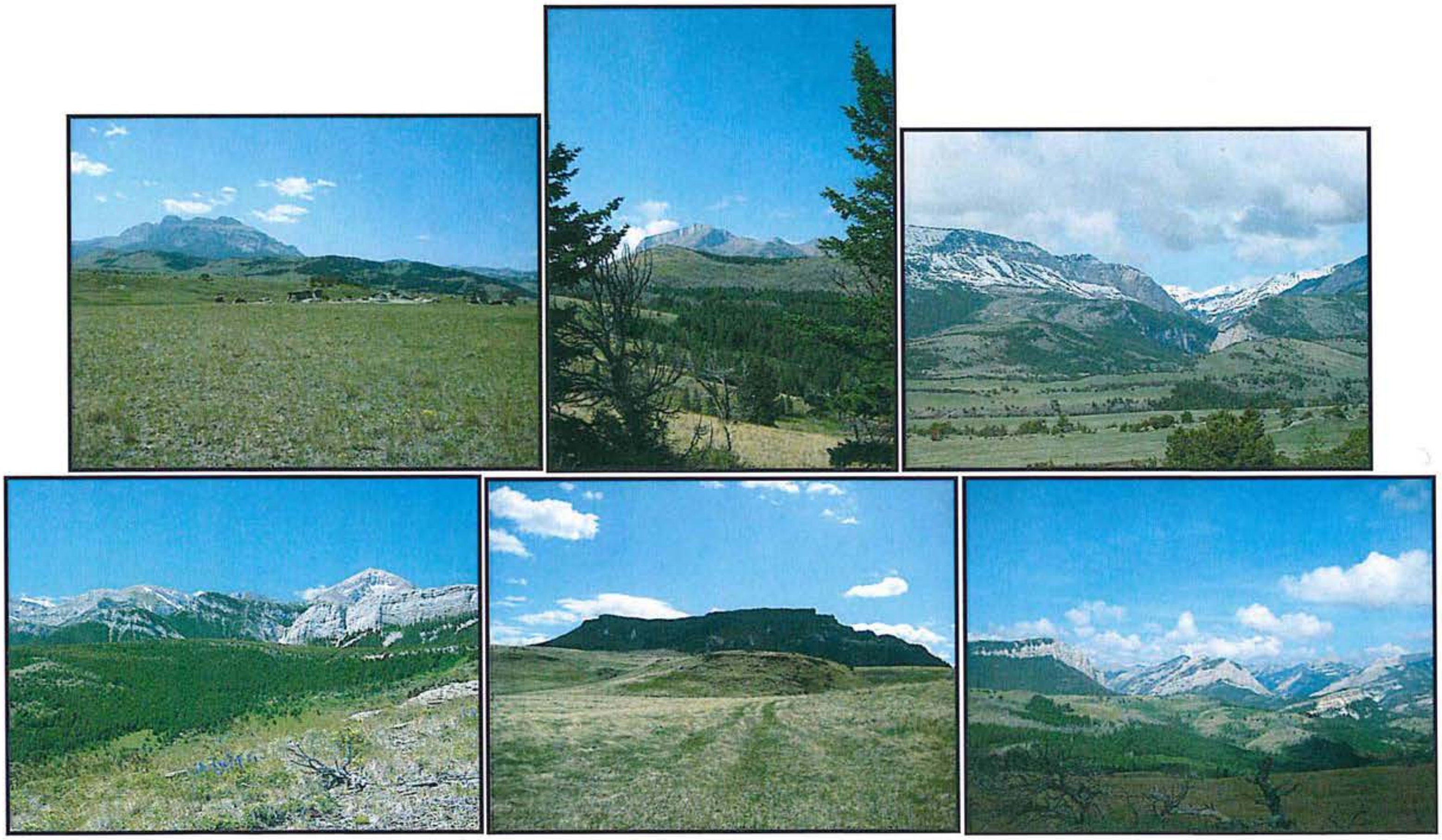
Lewistown Field Office

Resource Management Plan Revision

and Environmental Impact Statement

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Report on the Application of the Relevance and Importance Criteria



January 2015

Lewistown Field Office
Resource Management Plan (RMP) Revision
and Environmental Impact Statement (EIS)

AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACEC)

Report on the Application of the Relevance and Importance Criteria

January 2015

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Bureau of Land Management
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Date: 12/09/2015

TABLE OF CONTENTS

Section Page

SUMMARY 1

I. INTRODUCTION 2

II. REQUIREMENTS FOR ACEC DESIGNATION 4

III. SPECIAL MANAGEMENT ATTENTION 7

IV. EVALUATION PROCESS 7

V. LIST OF PREPARERS 22

APPENDICES

A Maps

TABLES

Page

1 Proposed ACECs Found to Meet the Relevance and Importance Criteria 5
2 Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs 9
3 List of Preparers 22

FIGURES

Page

1 Proposed ACECs....................2
2 ACECs Recommended for Analysis in the Draft RMP....................6

FIGURES (Appendix A)

A-1 Acid Shale-Pine Forest
A-2 Black Butte
A-3 Blacktail Creek
A-4 Blind Horse
A-5 Chute Mountain
A-6 Collar Gulch
A-7 Deep Creek/Battle Creek
A-8 Ear Mountain
A-9 Judith Mountains Scenic
A-10 Square Butte
A-11 Sun River

ACRONYMS AND ABBREVIATIONS

ACEC	area of critical environmental concern
BLM	United States Department of the Interior, Bureau of Land Management
CFR	Code of Federal Regulations
EIS	environmental impact statement
FLPMA	Federal Land Policy and Management Act
LFO	Lewistown Field Office
NCA	national conservation area
NCDE	Northern Continental Divide Ecosystem
ONA	outstanding natural area
RMP	resource management plan
RNA	research natural area
SRMA	special recreation management area
USC	United States Code
VRI	visual resource inventory
WCT	westslope cutthroat trout

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SUMMARY

As part of the United States Department of the Interior, Bureau of Land Management (BLM), Lewistown Field Office (LFO) Resource Management Plan (RMP) revision and Environmental Impact Statement (EIS), the LFO Interdisciplinary Team analyzed whether proposed areas of critical environmental concern (ACECs) met the relevance and importance criteria. The Interdisciplinary Team analyzed 3 new ACECs (internally proposed), 4 existing ACECs, and 4 existing outstanding natural areas (ONAs) (**Figure 1**, Proposed ACECs) and found that 10 met the relevance and importance criteria, totaling 32,008 acres (**Table 1**, Proposed ACECs Found to Meet the Relevance and Importance Criteria; **Figure 2**, ACECs Recommended for Analysis in the Draft RMP). Note that expansions of existing and proposed ACECs are counted as one ACEC in the above totals. One proposed ACEC, Black Butte, will not be considered for ACEC designation; although it met the relevance criteria, the importance criteria were determined to be more localized.

The areas found to meet both the relevance and importance criteria will be identified as potential ACECs and will be fully considered for designation and management in the RMP (BLM Manual 1613.2.21). For the one area found not to meet the importance criteria, "the management prescriptions which are eventually established in the plan for such areas shall reflect consideration of the identified values." See **Appendix A** for maps of the areas.

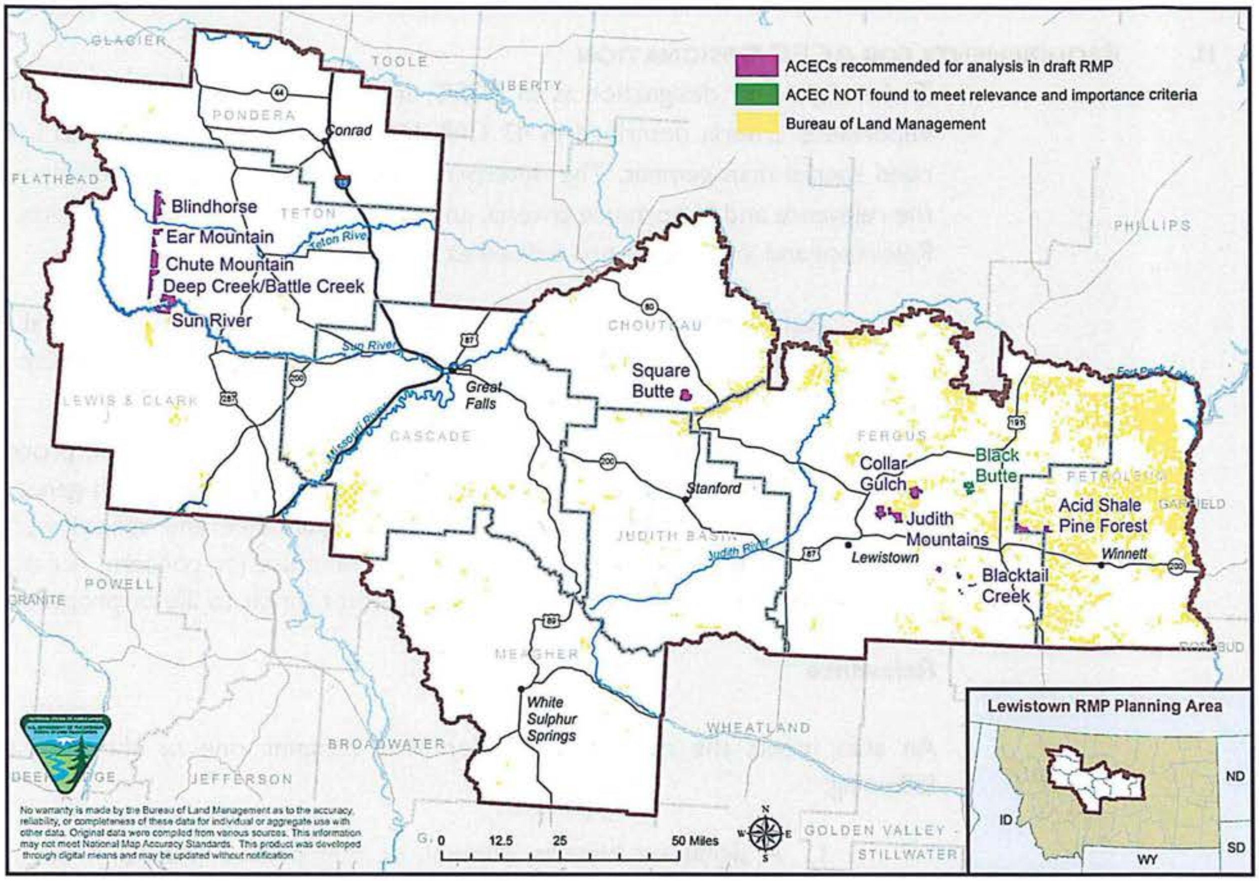
This report was completed in January 2015.

I. INTRODUCTION

As part of the process for developing the Lewistown RMP revision and EIS, the LFO interdisciplinary team reviewed all BLM-managed lands in the planning area to determine whether any areas should be considered for designation as ACECs. The Federal Land Policy and Management Act (FLPMA) requires that priority shall be given to the designation and protection of ACECs. These areas are defined in FLPMA Section 103(a) (43 United States Code [USC] 1702) and in 43 Code of Federal Regulations (CFR) 1601.0-5(a) as "areas within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources or other natural systems or processes; or to protect life and safety from natural hazards." The following analysis and the resultant findings for ACEC relevance and importance criteria has been performed pursuant to FLPMA Section 202(c)(3) (43 USC 1712), 43 CFR1610.7-2, and BLM Manual 1613, *Areas of Critical Environmental Concern.*

Figure 1 Proposed ACECs

Acid Shale-Pine Forest
Blacktail Creek
Black Butte
Blind Horse
Chute Mountain
Collar Gulch
Deep Creek/Battle Creek
Ear Mountain
Judith Mountains Scenic
Square Butte
Sun River



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II. REQUIREMENTS FOR ACEC DESIGNATION

To be eligible for designation as an ACEC, an area must meet the relevance and importance criteria described in 43 CFR 1610.7-2 and BLM Manual 1613, and need special management. The determinations in this report deal strictly with the relevance and importance criteria, and not special management attention. Relevance and importance are defined as follows:

> **Relevance:** There shall be present a significant historic, cultural, or scenic value, a fish or wildlife resource or other natural system or process, or natural hazard.
>
> **Importance:** The above described value, resource, system, process, or hazard shall have substantial significance and value, which generally requires qualities of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern. A natural hazard can be important if it is a significant threat to life or property.

Relevance

An area meets the relevance criterion if it contains one or more of the following:

1. A significant historic, cultural, or scenic value (including, but not limited to, rare or sensitive archeological resources and religious or cultural resources important to Native Americans).
2. A fish and wildlife resource (including, but not limited to, habitat for endangered, sensitive, or threatened species or habitat essential for maintaining species diversity).
3. A natural process or system (including, but not limited to, endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).
4. Natural hazards (including, but not limited to, areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action might meet the relevance criteria if it is determined through the resource management planning process to have become part of a natural process.

Importance

An area meets the importance criterion if it meets one or more of the following:

Has more than locally significant qualities that give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.

1. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
2. Has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of FLPMA.
3. Has qualities that warrant highlighting to satisfy public or management concerns about safety and public welfare.
5. Poses a significant threat to human life and safety or to property.

Table 1
Proposed ACECs Found to Meet the Relevance and Importance Criteria

ACEC	Acres
Acid Shale-Pine Forest (existing)	2,674
Blacktail Creek (staff proposed)	1,227
Blind Horse (existing)	4,927
Chute Mountain (existing ONA)	3,206
Collar Gulch (existing and staff proposed)	2,707
Deep Creek/Battle Creek (existing ONA)	3,075
Ear Mountain (existing ONA)	1,792
Judith Mountains Scenic (existing and staff proposed)	4,765
Square Butte (existing)	2,754
Sun River (staff proposed)	4,881
Total	**32,008**

Figure 2 ACECs Recommended for Analysis in the Draft RMP

Acid Shale-Pine Forest
Blacktail Creek
Blind Horse
Chute Mountain
Collar Gulch
Deep Creek/Battle Creek
Ear Mountain
Judith Mountains Scenic
Square Butte
Sun River

III. SPECIAL MANAGEMENT ATTENTION

Special management attention refers to "management prescriptions developed during preparation of an RMP or amendment expressly to protect the important and relevant values of an area from the potential effects of actions permitted by the RMP, including proposed actions deemed to be in conformance with the terms, conditions, and decisions of the RMP." Thus, these are management measures that would not be necessary and prescribed if the relevant and important values were not present.

A management prescription is considered to be special if it is unique to the area involved and includes terms and conditions specifically to protect the values occurring within the area. The BLM Manual 1613 includes the following guidance on incorporating management prescriptions for potential ACECs into appropriate alternatives:

> During the formulation of alternatives, management prescriptions for potential ACECs are fully developed. Management prescriptions will generally vary across the plan alternatives. If there is no controversy or issues raised regarding the management of a potential ACEC, it may not be necessary to develop a range of management alternatives. In other words, management prescriptions may not vary significantly across alternatives. A potential ACEC (or portion thereof) must be shown as recommended for designation in any or all alternatives in the Draft RMP in which special management attention is prescribed to protect the resource or to minimize hazard to human life and safety. Because special management attention must be prescribed in at least one plan alternative, each potential ACEC will appear as a recommended ACEC in at least one plan alternative. Designation is based on whether or not a potential ACEC requires special management attention in the selected plan alternative (i.e., preferred alternative).

IV. EVALUATION PROCESS

In compiling a list of areas to be analyzed in this report, the BLM Interdisciplinary Team followed the guidance set forth in BLM Manual 1613 and considered:

1. Existing ACECs;
2. Areas recommended for ACEC consideration (internal and external nominations);
3. Areas identified through inventory and monitoring; and
4. Adjacent designations of other federal and state agencies.

Proposed ACECs may be nominated by BLM staff, other agencies, or members of the public at any time. During the RMP revision scoping process, the LFO solicited nominations and comments from the public and other agencies. A map of special designation areas was displayed at the scoping meetings and made available on the RMP website at *http://www.blm.gov/ngld*.

The BLM staff reviewed information from BLM inventories; the Montana Natural Heritage Program (MNHP), United States Fish and Wildlife Service (FWS), and the Montana Fish, Wildlife and Parks (MFWP) species of concern data; and other reports to ensure that all potentially relevant and important values within the planning area were considered.

Maps of the 11 proposed ACECs are included in **Appendix A**. One proposed ACEC, Black Butte, will not be considered for designation. The remaining 10 ACECs recommended for analysis were found to meet the relevance and importance criteria. The size and management prescriptions for each ACEC may vary by alternative to reflect a balance between the goals and objectives of the alternative and values being protected (BLM Manual 1613.2.22.B.1-2). **Table 2**, Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs, summarizes the proposed ACECs evaluated, the values assessed, and whether the criteria were met (including supporting information).

Table 2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1984 (Headwaters) or 1994 (Judith) RMP Acres**	**Proposed Acres[1] includes acres from 1984 or 1994 RMPs**	**Acres Carried Forward[1]**
Acid Shale-Pine Forest *Existing*	Plant Communities	3	1 and 2	Yes	Area contains a rare and endemic plant community. It is comprised of Volberg (Dilts) soils which give rise to a unique flora characterized by ponderosa pine, horizontal juniper, sun sedge, and prairie sandreed. Briggs Coulee and War Horse contain the largest, best developed and most diverse example of acid shale pines on BLM lands.	2,463 (Briggs Coulee – 1,646 acres and War Horse – 817 acres)	2,674	2,674
	Soils	3	1 and 2					
Black Butte	Cultural	1	1	No	Black Butte was the site of the first of seven visions of Bull Lodge, a Gros Ventre spiritual leader. It is a prominent historic landmark for the local communities in Central Montana and serves as a visual backdrop on the Montana landscape. It has a VRI rating of Class II. The area contains stone circles associated with a perennial spring. The documented	0	1,917	0
	Historic	1	2					

Table 2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1984 (Headwaters) or 1994 (Judith) RMP Acres**	**Proposed Acres[1] includes acres from 1984 or 1994 RMPs**	**Acres Carried Forward[1]**
					Black Butte properties remain in nearly-pristine condition and most retain archaeological integrity. Although the area meets the Relevance criterion, the Importance criterion is more localized; consequently, Black Butte should not be considered an ACEC.			
Blacktail Creek *New - Staff Proposed*	Paleontology	3	1 and 3	Yes	The Bear Gulch Limestone of the Heath Formation exhibits extraordinary fossils with exceptional preservation in this area. Approximately 130 species of fish, arthropods, sponges, starfish, conulariids, worms, and other soft-bodied organisms, and shells of brachiopods, bryozoans, and molluscs have been found here.	0	1,227	1,227

Table 2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1984 (Headwaters) or 1994 (Judith) RMP Acres**	**Proposed Acres[1] includes acres from 1984 or 1994 RMPs**	**Acres Carried Forward[1]**
Blind Horse *Existing*	Scenic	1	2	Yes	The area is a unified, geologic, and ecosystem area where the eastern slopes of the Rocky Mountains meet the plains, known as the Rocky Mountain Front. It is an important geologic feature that affects the weather in North America. It has a high wilderness quality and the scenic rating is a high A due to steep, mountainous terrain, major limestone outcrops, cliffs, various water sources, and mixed vegetation with minimal cultural modifications. Blind Horse is currently designated as an ONA to protect the wildlife habitat, scenery, and other surface resources from disturbance. It is also managed to maintain visual resource inventory (VRI) Class I guidelines to retain the existing character of the	4,927	4,927	4.927
	Geologic Features	1 and 3	1 and 2					
	Wildlife	2	1					

Table 2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1984 (Headwaters) or 1994 (Judith) RMP Acres**	**Proposed Acres[1] includes acres from 1984 or 1994 RMPs**	**Acres Carried Forward[1]**
					landscape. It is within the Northern Continental Divide Ecosystem (NCDE) Grizzly Bear Recovery Zone. Other wildlife species inhabiting the area include: elk, bighorn sheep, lynx, mountain lion, raptors and upland birds.			
Chute Mountain *Existing*	Scenic	1	2	Yes	The area is a unified, geologic, and ecosystem area where the eastern slopes of the Rocky Mountains meet the plains, known as the Rocky Mountain Front. It is an important geologic feature that affects the weather in North America. It has a high wilderness quality and the scenic rating is a high A due to steep, mountainous terrain, major limestone outcrops, cliffs, various water sources, and mixed vegetation with minimal cultural modifications. Blind Horse is currently designated	3,205	3,206	3,206
	Geologic Features	1 and 3	1 and 2					
	Wildlife	2	1					

Table 2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1984 (Headwaters) or 1994 (Judith) RMP Acres**	**Proposed Acres[1] includes acres from 1984 or 1994 RMPs**	**Acres Carried Forward[1]**
					as an ONA to protect the wildlife habitat, scenery, and other surface resources from disturbance. It is also managed to maintain visual resource inventory (VRI) Class I guidelines to retain the existing character of the landscape. It is also within the Northern Continental Divide Ecosystem (NCDE) Grizzly Bear Recovery Zone. Other wildlife species inhabiting the area include: elk, bighorn sheep, lynx, mountain lion, raptors and upland birds.			
Collar Gulch *Existing/Proposed Expansion*	Fisheries (westslope cutthroat trout)	2	1 and 2	Yes	Collar Gulch is mountain stream habitat which contains a genetically pure strain of westslope cutthroat trout (WCT), a BLM sensitive species. Also included in the ACEC is the Tate-Poetter Cave which	1,618	2,707	2,707
	Wildlife (Townsend's big-eared bats)	2	2					
	Geologic Features (cave)	2 and 3	2					

Table 2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1984 (Headwaters) or 1994 (Judith) RMP Acres**	**Proposed Acres[1] includes acres from 1984 or 1994 RMPs**	**Acres Carried Forward[1]**
					possesses significant biologic, geologic, educational/scientific, and recreational cave resources. The cave contains a winter bat hibernaculum for Townsend's big-eared bats, a BLM sensitive species. Expansion of the area is recommended to include the remaining lands within the Collar Gulch Watershed as well as the Chicago Gulch Watershed since this area is being considered for introduction of another population of WCT.			
Deep Creek/Battle Creek *Existing*	Scenic	1	2	Yes	The area is a unified, geologic, and ecosystem area where the eastern slopes of the Rocky Mountains meet the plains, known as the Rocky Mountain Front. It is an important geologic feature	3,086	3,075	3,075
	Geologic Features	1 and 3	1 and 2					
	Wildlife	2	1					

Table 2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1984 (Headwaters) or 1994 (Judith) RMP Acres**	**Proposed Acres[1] includes acres from 1984 or 1994 RMPs**	**Acres Carried Forward[1]**
					that affects the weather in North America. It has a high wilderness quality and the scenic rating is a high A due to steep, mountainous terrain, major limestone outcrops, cliffs, various water sources, and mixed vegetation with minimal cultural modifications. Blind Horse is currently designated as an ONA to protect the wildlife habitat, scenery, and other surface resources from disturbance. It is also managed to maintain visual resource inventory (VRI) Class I guidelines to retain the existing character of the landscape. It is also within the Northern Continental Divide Ecosystem (NCDE) Grizzly Bear Recovery Zone. Other wildlife species inhabiting the area include: elk, bighorn sheep, lynx,			

Table 2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1984 (Headwaters) or 1994 (Judith) RMP Acres**	**Proposed Acres[1] includes acres from 1984 or 1994 RMPs**	**Acres Carried Forward[1]**
					mountain lion, raptors and upland birds.			
Ear Mountain *Existing*	Scenic	1	2	Yes	The area is a unified, geologic, and ecosystem area where the eastern slopes of the Rocky Mountains meet the plains, known as the Rocky Mountain Front. It is an important geologic feature that affects the weather in North America. It has a high wilderness quality and the scenic rating is a high A due to steep, mountainous terrain, major limestone outcrops, cliffs, various water sources, and mixed vegetation with minimal cultural modifications. Ear Mountain is currently designated as an ONA to protect the wildlife habitat, scenery, and other surface resources from disturbance. It is also managed to maintain visual resource inventory	1,869	1,792	1,792
	Geologic Features	1 and 3	1 and 2					
	Wildlife	2	1					

Table 2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1984 (Headwaters) or 1994 (Judith) RMP Acres**	**Proposed Acres[1] includes acres from 1984 or 1994 RMPs**	**Acres Carried Forward[1]**
					(VRI) Class I guidelines to retain the existing character of the landscape. It is also within the Northern Continental Divide Ecosystem (NCDE) Grizzly Bear Recovery Zone. Other wildlife species inhabiting the area include: elk, bighorn sheep, lynx, mountain lion, raptors and upland birds.			
Judith Mountains Scenic *Existing/Proposed Expansion*	Scenic	1	1 and 2	Yes	The Judith Mountains Scenic area contains regionally-significant scenic values. It has a Scenic Quality rating of Class B, a High Sensitivity Level Rating, and a VRI rating of Class II. It is one of the few forested mountain islands in the Great Plains Physiographic Region. This area was designated as an ACEC in the 1994 Judith Resource Area RMP; however, an additional area,	3,702	4,765* * Expansion of Judith Mountains Scenic ACEC proposed to include Crystal Cave	4,765
	Geologic Features (cave)	2	2					

Table 2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1984 (Headwaters) or 1994 (Judith) RMP Acres**	**Proposed Acres[1] includes acres from 1984 or 1994 RMPs**	**Acres Carried Forward[1]**
					which includes the Crystal Cave, also meets the relevance and importance criteria for protection as an ACEC.			
Square Butte *Existing*	Cultural	1	1, 2, and 3	Yes	The documented Square Butte properties retain artifacts diagnostic of human occupations spanning at least 9,000 years of prehistory. Its cultural properties are in nearly-pristine condition and most retain archaeological integrity. Nearly all prehistoric site types common to Central Montana, including habitations, industrial sites, and ritual properties, are represented at Square Butte. It is exceptionally rare for an area of its size to retain such a large number, density, and diversity of cultural properties. It also is home to a mountain goat population	1,947	2,754	2,754
	Geologic Features	3	1 and 2					
	Scenic	1	3					
	Wildlife	2	1					

Table 2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1984 (Headwaters) or 1994 (Judith) RMP Acres	Proposed Acres[1] includes acres from 1984 or 1994 RMPs	Acres Carried Forward[1]
					that was first transplanted from the Gates of the Mountains area in 1943. Square Butte contains rare geologic features. The butte is a prominent historic landmark. It possesses high scenic qualities and has been given a VRI rating of Class I, a designation that only 2 percent of the planning area has achieved.			
Sun River *New – Staff Proposed*	Scenic	1	1, 2, and 3	Yes	The area provides the foreground setting against which the Rocky Mountain Front sharply rises to the west. It is the only consolidated, public land portion of the mixed-grass prairie portion of the prairie/mountain interface. The BLM's 2014 VRI assigned it a scenic quality rating of 'A' which is attributed to the magnitude and diversity of landforms. The area is	0	4,881	4,881
	Cultural	1	1, 2, and 3					
	Paleontology	1	3					
	Wildlife	2						

Table 2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1984 (Headwaters) or 1994 (Judith) RMP Acres	Proposed Acres[1] includes acres from 1984 or 1994 RMPs	Acres Carried Forward[1]
					predominantly in VRI Class III with some portions in Class II. The unit includes numerous special areas and is used for a wide variety of purposes. The region has cultural significance due to preservation of a high number of known paleontology localities that include plants, invertebrates, crocodiles, and dinosaur body fossils, eggs, and track. Past cultural resource inventory of the Sun River drainage has revealed stone circles, rock cairns, and alignments scattered across the landscape. The area is part of the Blackfeet aboriginal homelands. The Sun River area is located within the Priority Conservation Area in the NCDE Draft Grizzly Bear Conservation Strategy where			

Table 2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1984 (Headwaters) or 1994 (Judith) RMP Acres**	**Proposed Acres[1] includes acres from 1984 or 1994 RMPs**	**Acres Carried Forward[1]**
					the most conservative habitat protections would apply. This portion of the Sun River contains a substantial sport trout fishery, in addition to the presence of fluvial arctic grayling that were re-introduced in the Sun River headwaters.			

V. LIST OF PREPARERS

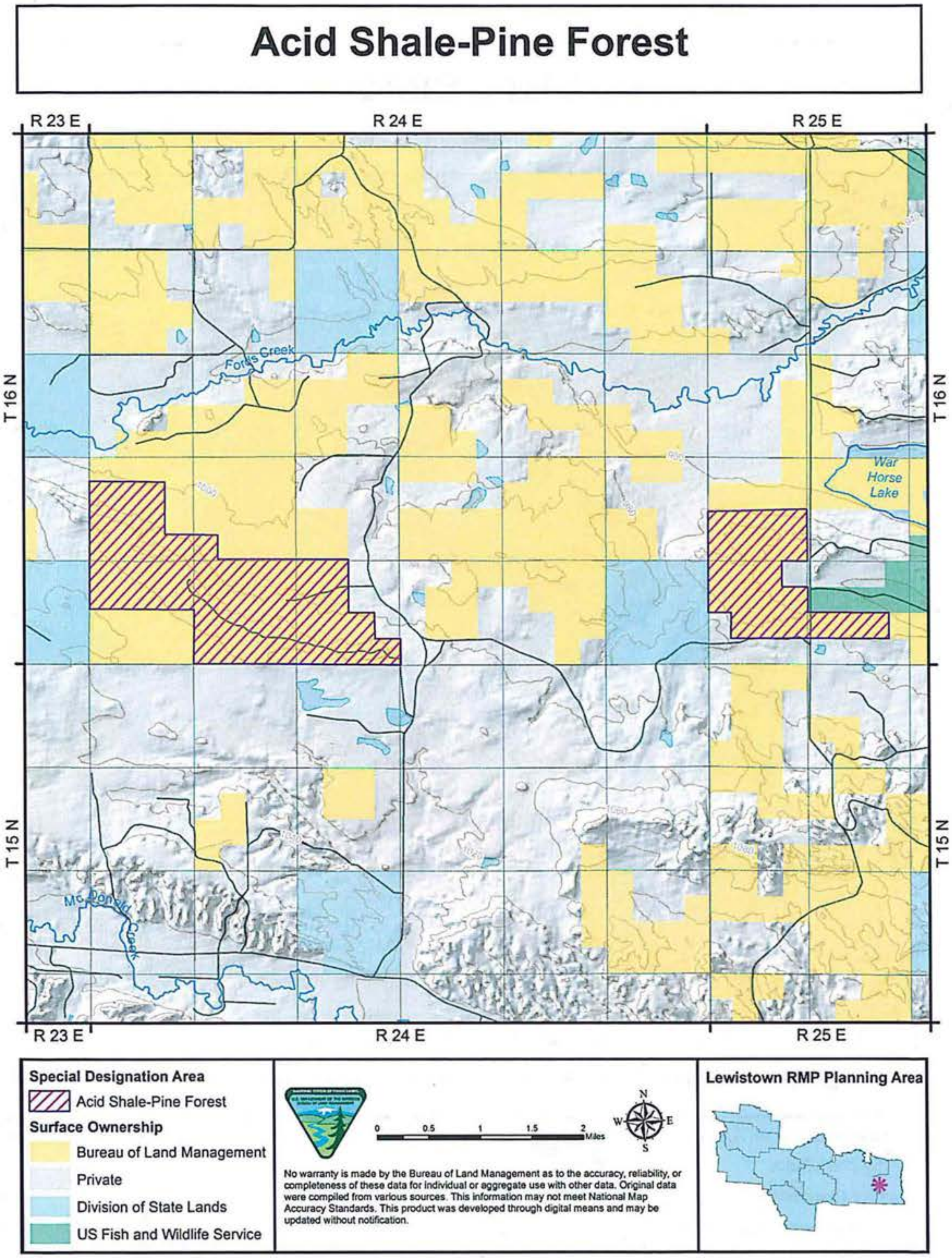
Table 3
List of Preparers

Name	Role/Responsibility
Bureau of Land Management – Lewistown Field Office	
Geoff Beyersdorf	Field Manager
Dan Brunkhorst	RMP/EIS Project Manager
Kelly McGill	Outdoor Recreation Planner
Chad Krause	Hydrologist
Matt Comer	Wildlife Biologist
Monica Ketcham	Fisheries Biologist
Chris Rye	Geologist
Greg Liggett	Paleontologist
Zane Fulbright	Archaeologist
Robert Thompson	Rangeland Management Specialist
Rich Byron	Forester
Wendy Velman	Physical Scientist
Karly DeMars	Fire Management Specialist
Deb Tucek	Realty Specialist
Steve Smith	Weed Coordinator
Hilary Rigby/Eva Karau	GIS Specialist
Betty Westburg	Technical Writer/Editor
Contractor – Environmental Management and Planning Solutions, Inc.	
Chad Ricklefs	Project Management
Kate Krebs	Project Management
Marcia Rickey	GIS Specialist

Appendix A

Maps

A-1 Acid Shale-Pine Forest



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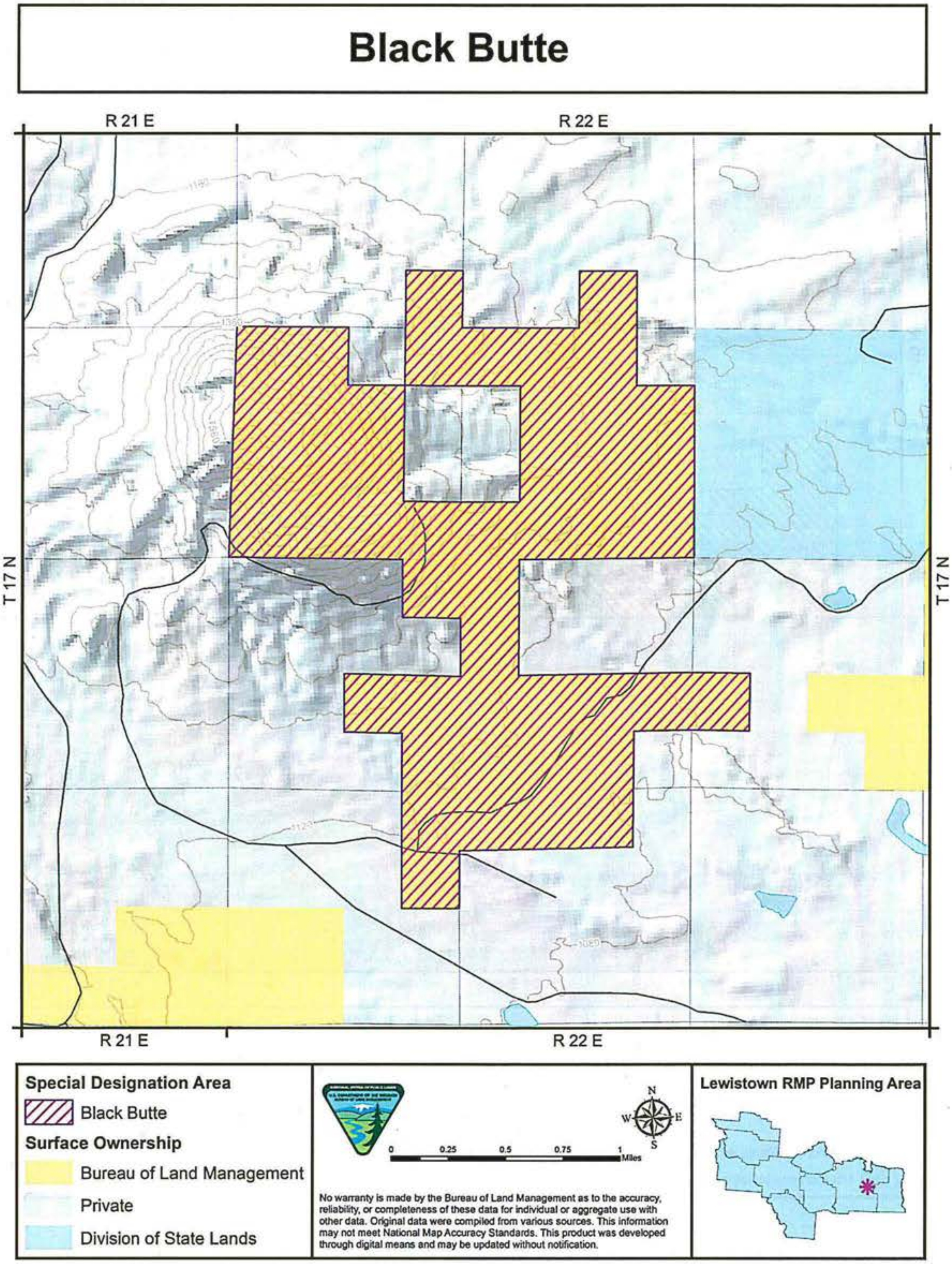
A-2 Black Butte


Black Butte
R 21 E
R 22 E
T 17 N
T 17 N
R 21 E
R 22 E
Special Designation Area
▨ Black Butte
Surface Ownership
Bureau of Land Management
Private
Division of State Lands
0
0.25
0.5
0.75
1
Miles
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W
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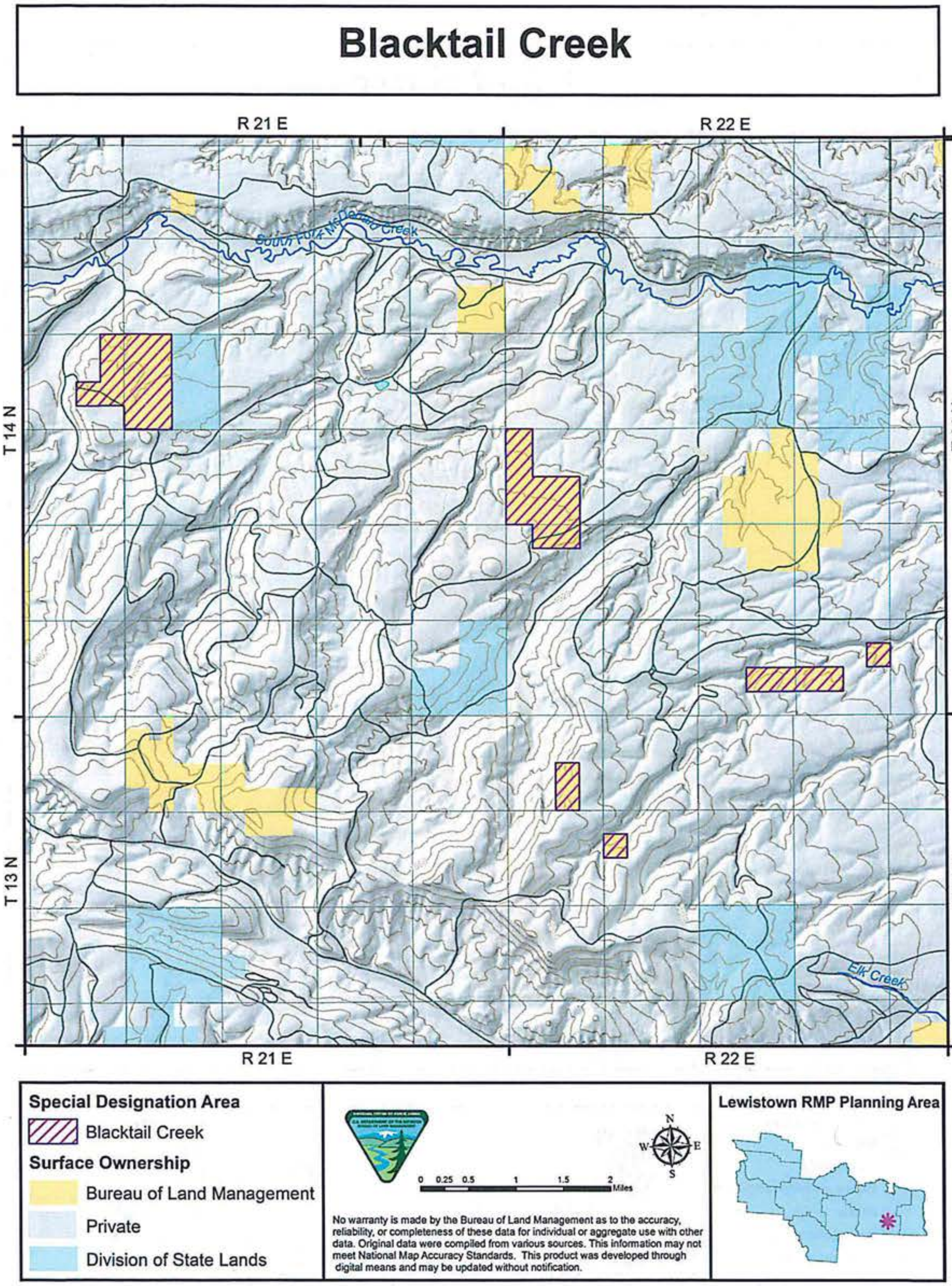
S
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
Lewistown RMP Planning Area

A-3 Blacktail Creek


Blacktail Creek
R 21 E
R 22 E
T 14 N
T 13 N
South Fork McDonald Creek
Elk Creek
Special Designation Area
▨ Blacktail Creek
Surface Ownership
Bureau of Land Management
Private
Division of State Lands
0 0.25 0.5 1 1.5 2 Miles
N
S
E
W
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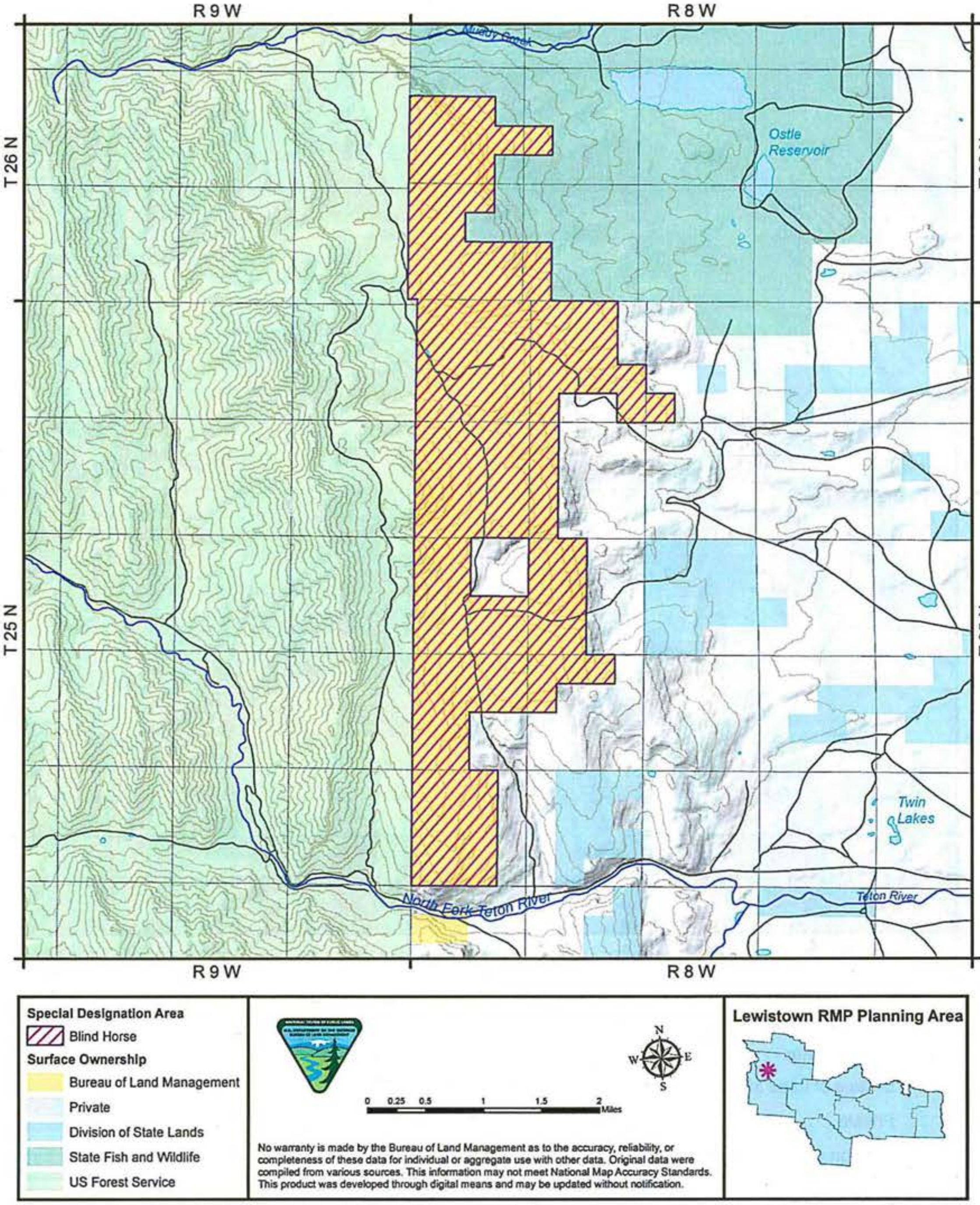
Lewistown RMP Planning Area

A-4 Blind Horse

Blind Horse



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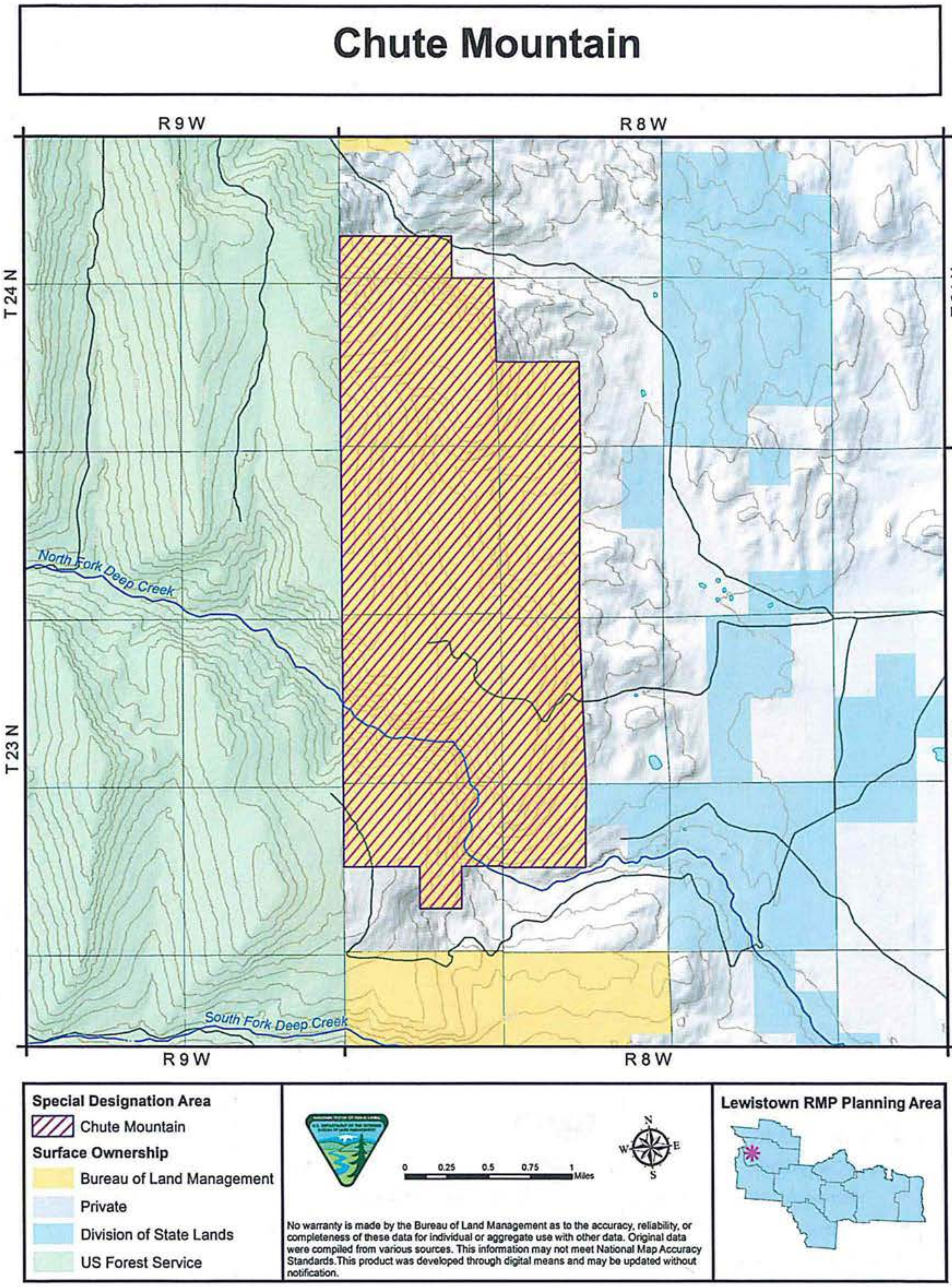
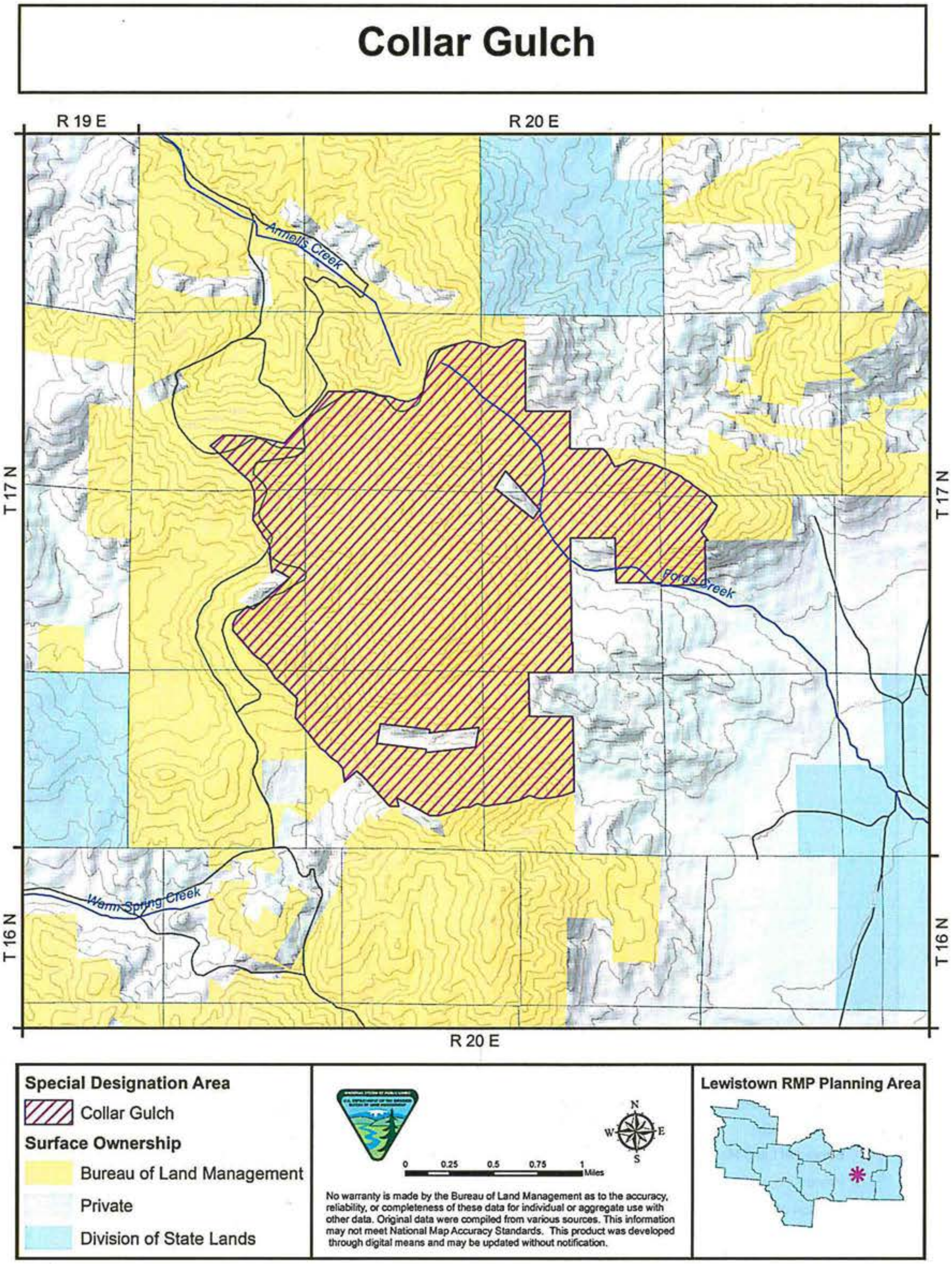
A-5 Chute Mountain

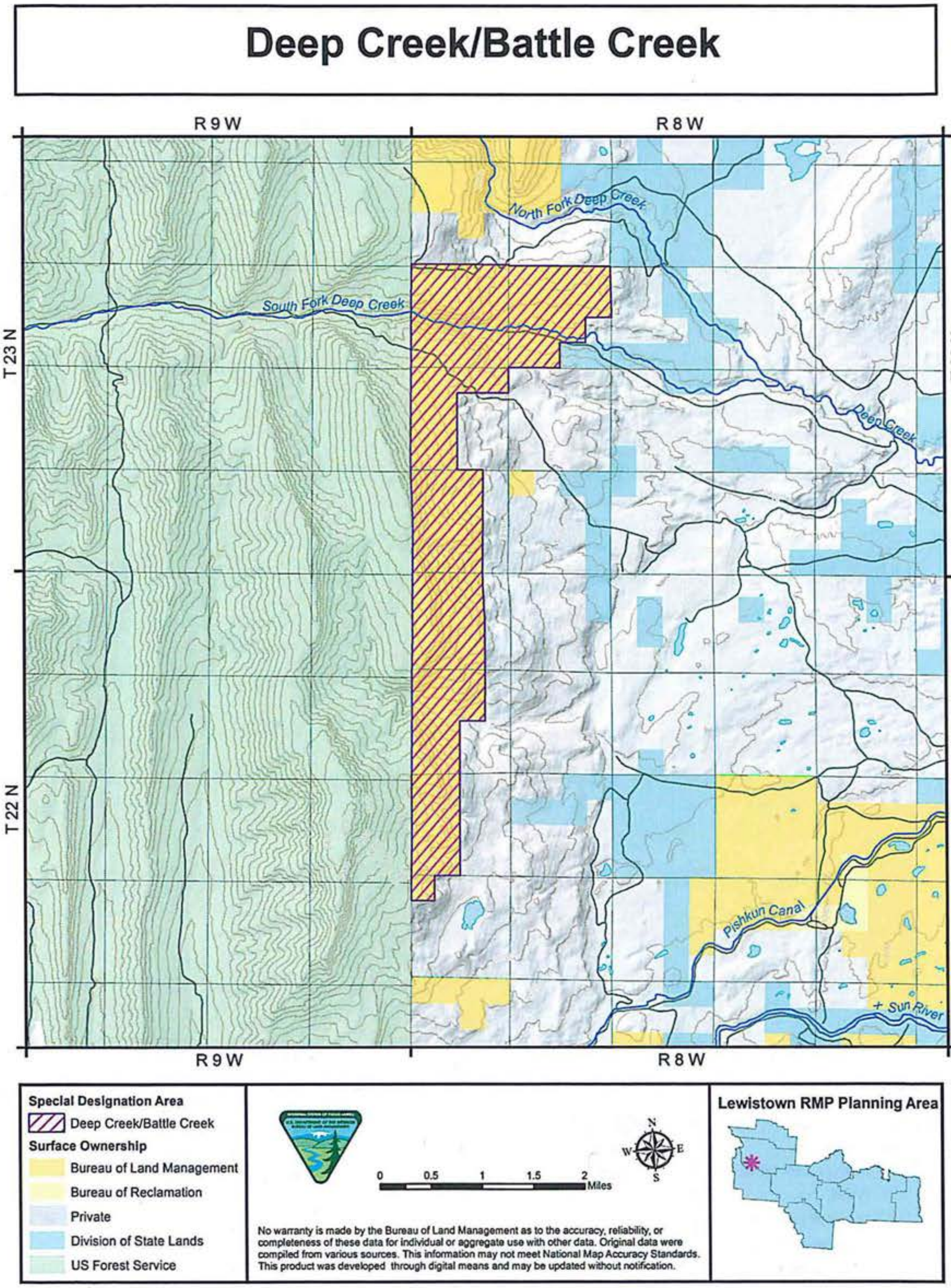


No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

A-3 Collar Gulch


Collar Gulch
R 19 E
R 20 E
T 17 N
T 16 N
Armells Creek
Fords Creek
Warm Spring Creek
Special Designation Area
▨ Collar Gulch
Surface Ownership
Bureau of Land Management
Private
Division of State Lands
0
0.25
0.5
0.75
1
Miles
N
S
E
W
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
Lewistown RMP Planning Area

A-7 Deep Creek/Battle Creek


Deep Creek/Battle Creek
R 9 W
R 8 W
T 23 N
T 22 N
North Fork Deep Creek
South Fork Deep Creek
Deep Creek
Pishkun Canal
Sun River
Special Designation Area
▨ Deep Creek/Battle Creek
Surface Ownership
Bureau of Land Management
Bureau of Reclamation
Private
Division of State Lands
US Forest Service
0
0.5
1
1.5
2
Miles
N
S
E
W
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
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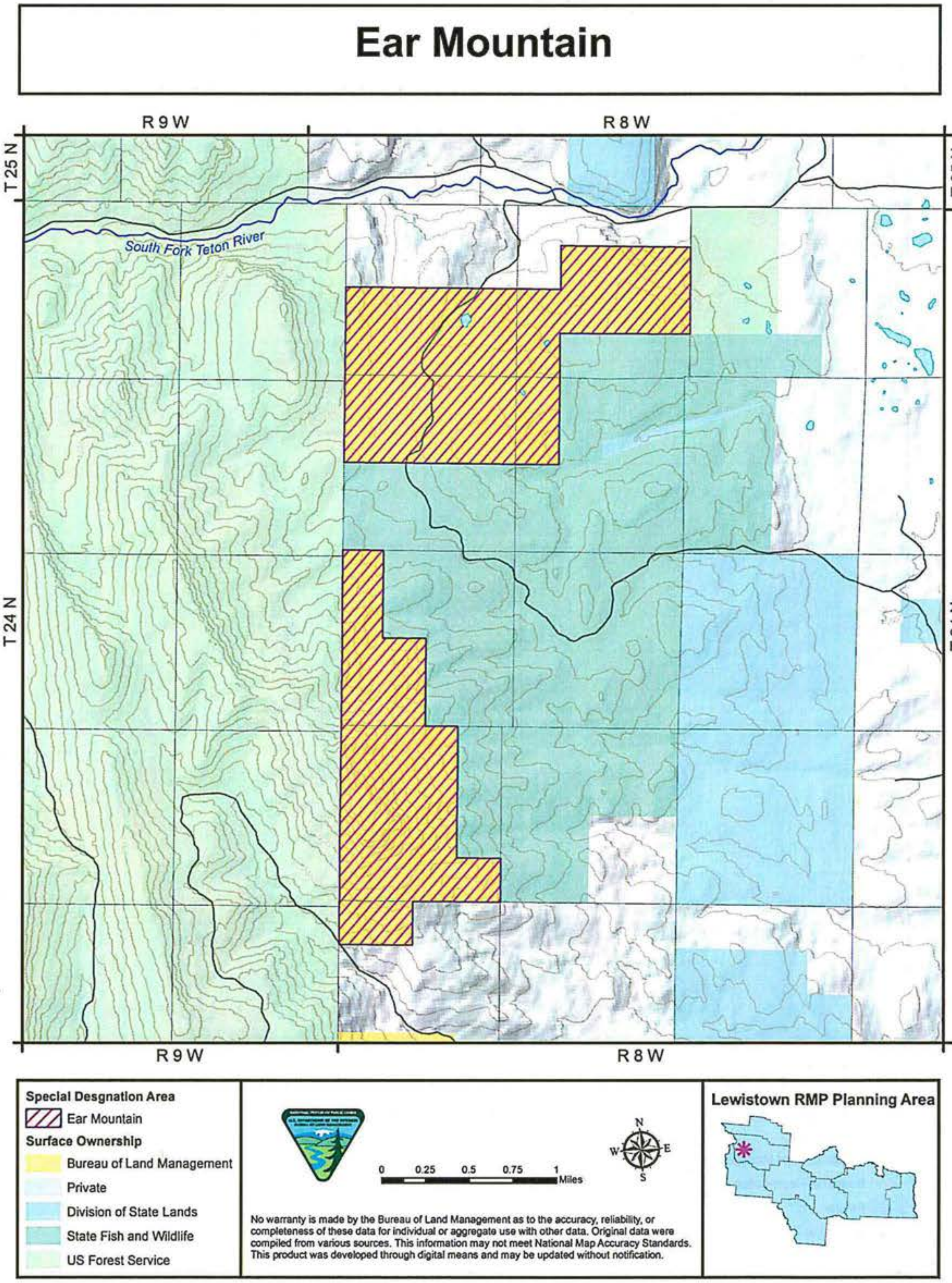
A-8 Ear Mountain


Ear Mountain
R 9 W
R 8 W
T 25 N
T 24 N
South Fork Teton River
Special Desgnation Area
Ear Mountain
Surface Ownership
Bureau of Land Management
Private
Division of State Lands
State Fish and Wildlife
US Forest Service
0
0.25
0.5
0.75
1
Miles
N
E
S
W
Lewistown RMP Planning Area
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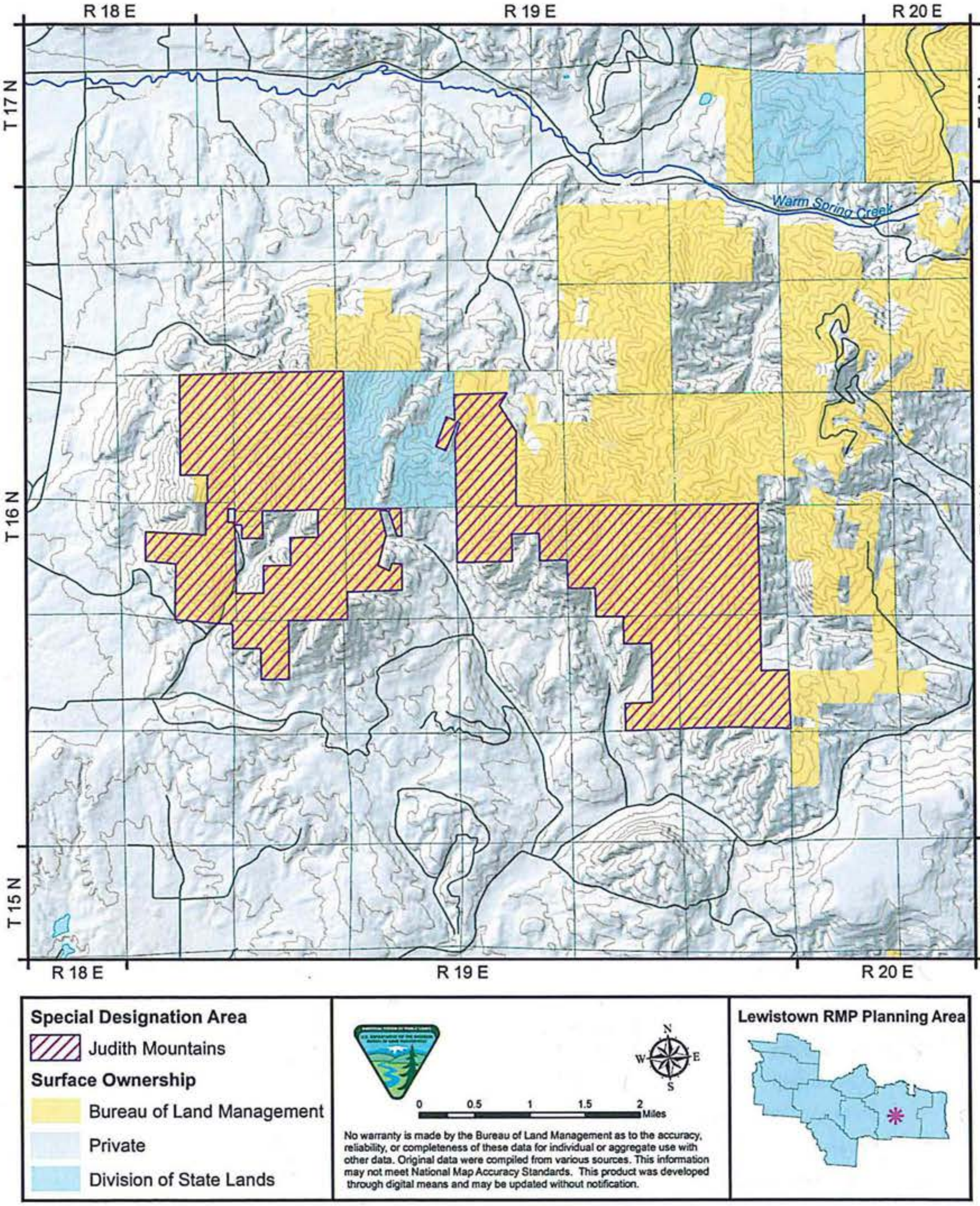
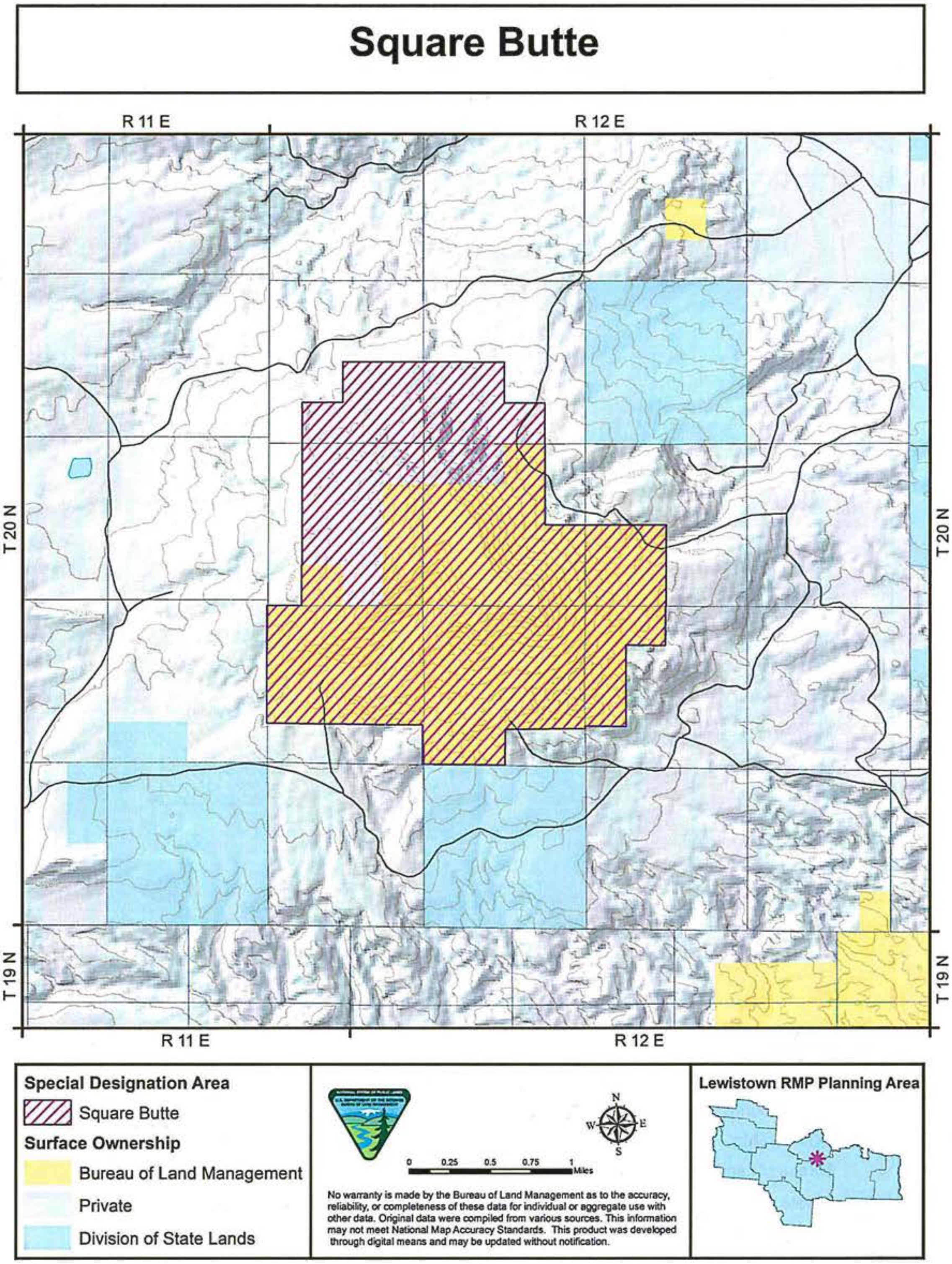
A-9 Judith Mountains Scenic

Judith Mountains



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

A-10 Square Butte


Square Butte
R 11 E
R 12 E
T 20 N
T 19 N
Special Designation Area
▨ Square Butte
Surface Ownership
Bureau of Land Management
Private
Division of State Lands
0 0.25 0.5 0.75 1 Miles
N
S
E
W
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
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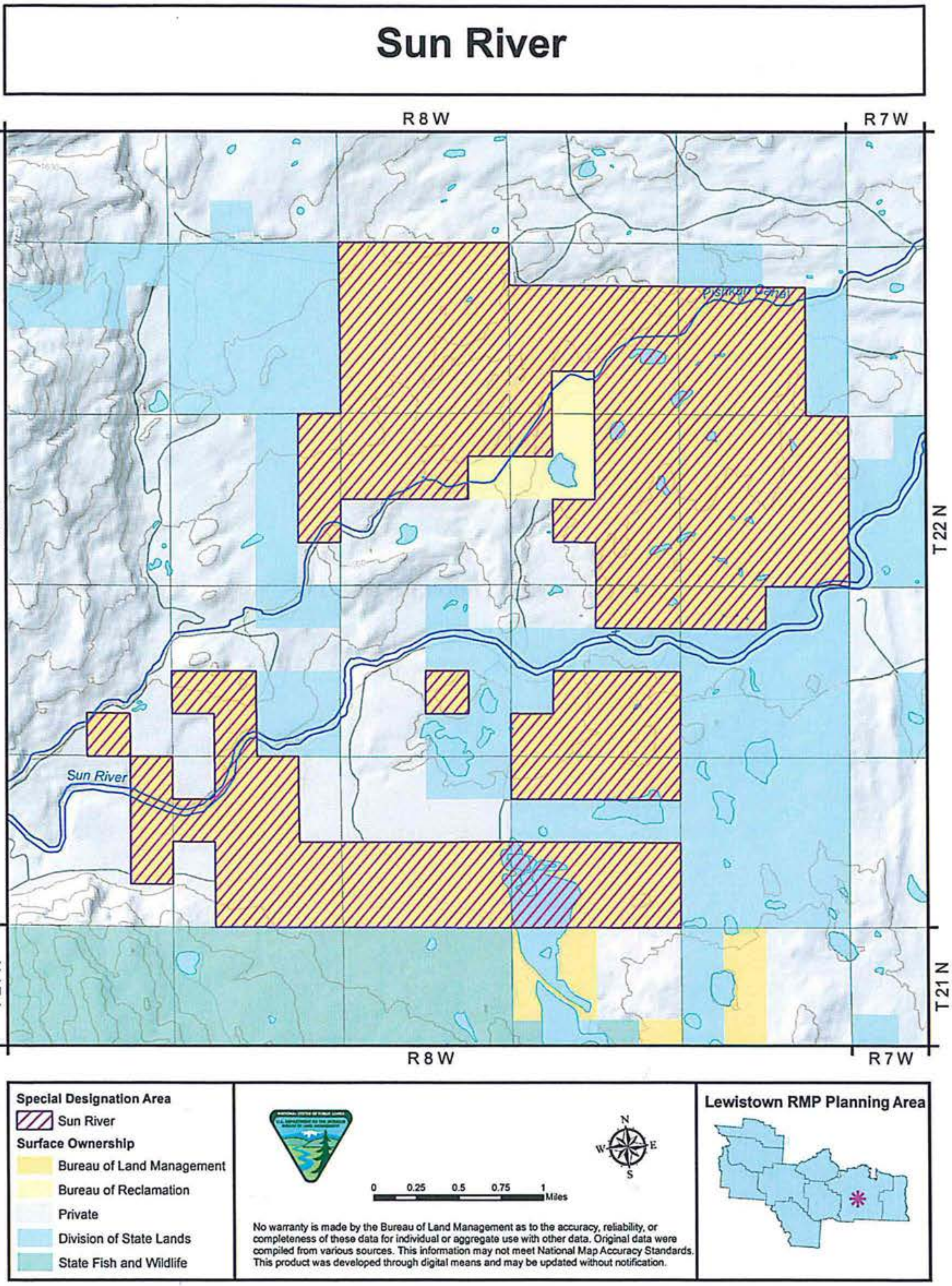
A-11 Sun River


Sun River
R 8 W
R 7 W
T 22 N
T 21 N
Pishkun Canal
Sun River
Special Designation Area
▨ Sun River
Surface Ownership
Bureau of Land Management
Bureau of Reclamation
Private
Division of State Lands
State Fish and Wildlife
N
W
E
S
0
0.25
0.5
0.75
1
Miles
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.
Lewistown RMP Planning Area

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Appendix U

Land Management Allocations

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TABLE OF CONTENTS

Section Page

APPENDIX U. LAND MANAGEMENT ALLOCATIONS.. U-1

U.1 Rights-of-Way.. U-1
U.2 Minerals... U-4
U.3 Visual Resource Management...U-16
U.4 Travel and Transportation Management...U-19
U.5 Lands with Wilderness Characteristics (LWC) U-25
U.6 Areas of Critical Environmental Concern U-28
U.7 Conservation Management Areas...U-40
U.8 Forestry..U-41
U.9 Renewable Energy U-42
U.10 Extensive Recreation Management Area U-44
U.11 Extensive Recreation Management Area/Backcountry Conservation Area U-47
U.12 Special Recreation Management Areas...U-48

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Appendix U. Land Management Allocations

U.1 RIGHTS-OF-WAY

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
ROW Exclusion Areas				
Allowable Use: Manage the following areas as ROW exclusion areas (15,700 acres): • Conservation Management Areas (CMAs) • ACECs/ONAs: o Blind Horse (ROW exclusion area for communication site ROWs) o Chute Mountain (ROW exclusion area for communication site ROWs) o Deep Creek/Battle Creek (ROW exclusion area for communication site ROWs) o Ear Mountain (ROW exclusion area for communication site ROWs) o WSAs	**Allowable Use:** Manage the following areas as ROW exclusion areas for new land use authorizations (278,800 acres): • Conservation Management Areas (CMAs) • Riparian-wetland areas • NRHP-eligible and -listed historical properties and cultural sites allocated to conservation for future use, traditional use, and public use • Lands managed to protect wilderness characteristics • BCAs o Arrow Creek BCA o Cemetery Road BCA o Crooked Creek BCA o Judith Mountains BCA • ACECs: o Acid Shale-Pine Forest o Blacktail Creek o Blind Horse o Chute Mountain o Collar Gulch o Deep Creek/Battle Creek o Ear Mountain o Judith Mountains Scenic o Square Butte	**Allowable Use:** Manage the following areas as ROW exclusion areas for new land use authorizations (2,700 acres): • WSAs	**Allowable Use:** Manage the following areas as ROW exclusion areas for new land use authorizations (16,500 acres): • Conservation Management Areas (CMAs) • ACECs o Square Butte • WSAs	**Allowable Use:** Manage the following areas as ROW exclusion areas for new land use authorizations (18,000 acres): • Conservation Management Areas (CMAs) • NRHP-listed historical properties • ACECs: o Blind Horse (ROW exclusion area for communication site ROWs) o Chute Mountain (ROW exclusion area for communication site ROWs) o Deep Creek/Battle Creek (ROW exclusion area for communication site ROWs) o Ear Mountain (ROW exclusion area for communication site ROWs) o Square Butte WSAs

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
	• WSR suitable segments classified as Wild • WSAs			
ROW Avoidance Areas				
Allowable Use: Manage the following areas as ROW avoidance areas (378,700 acres): • Greater sage-grouse PHMA • Greater sage-grouse GHMA for high voltage transmission lines and large pipelines • ACECs/ONAs: o Blind Horse (for utility and transportation corridors) o Chute Mountain (for utility and transportation corridors) o Deep Creek/Battle Creek (for utility and transportation corridors) o Ear Mountain (for utility and transportation corridors) o Acid Shale-Pine Forest (JVP) o Judith Mountains Scenic • Judith River Canyon (10,100 acres; JVP) • Judith Mountains ACEC (JVP) • South Moccasin (1,200 acres; JVP) • Rocky Mountain Front (27,900 acres; HRMP)	**Allowable Use:** Manage the following areas as ROW avoidance areas for new land use authorizations (341,500 acres): • Sensitive soils • Greater sage-grouse PHMA • Greater sage-grouse GHMA for high voltage transmission lines and large pipelines • Rocky Mountain Front (27,900 acres) • Sun River ACEC • WSR suitable segments classified as Scenic or Recreational (except for Middle Fork Dearborn and Missouri River; • NSTs and NHTs	**Allowable Use:** Manage the following areas as ROW avoidance areas for new land use authorizations (345,500 acres): • Greater sage-grouse PHMA • Greater sage-grouse GHMA for high voltage transmission lines and large pipelines Roads and utility corridors would avoid riparian zones to the extent practicable.	**Allowable Use:** Manage the following areas as ROW avoidance areas for new land use authorizations (438,200 acres): • Greater sage-grouse PHMA • Greater sage-grouse GHMA for high voltage transmission lines and large pipelines • ACECs o Acid Shale-Pine Forest • BCAs o Crooked Creek o Arrow Creek *Roads and utility corridors would avoid riparian zones to the extent practicable.*	**Allowable Use:** Manage the following areas as ROW avoidance areas for new land use authorizations (446,600 acres): • Greater sage-grouse PHMA • Greater sage-grouse GHMA for high voltage transmission lines and large pipelines • NRHP-eligible historical properties and cultural sites allocated to conservation for future use, traditional use, and public use • Lands managed to protect wilderness characteristics • ACECs: o Acid Shale-Pine Forest o Blind Horse (ROW avoidance area for utility and transportation corridors) o Chute Mountain (ROW avoidance area for utility and transportation corridors) o Deep Creek/Battle Creek (ROW avoidance

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Roads and utility corridors would avoid riparian zones to the extent practicable. (HRMP)				area for utility and transportation corridors) o Ear Mountain (ROW avoidance area for utility and transportation corridors) o Sun River *Roads and utility corridors would avoid riparian zones to the extent practicable.*

U.2 MINERALS

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Fluid Leasable Minerals				
Closed per withdrawal orders				
Allowable Use: Manage 110,200 acres of federal mineral estate as closed to fluid mineral leasing in accordance with withdrawal orders				
Closed per laws				
Allowable Use: Manage WSAs (1,900 acres) as closed to fluid mineral leasing in accordance with the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (30 USC 181)				
Administratively closed				
Action: Manage 0 acres of federal mineral estate as administratively closed to fluid mineral leasing: • ACECs/ONAs: o Blind Horse* o Chute Mountain* o Deep Creek/Battle Creek* o Ear Mountain* o Square Butte** In addition to areas closed to all fluid mineral leasing, manage the following areas as closed to geothermal leasing: • Other National Landscape Conservation System units (e.g., national trails) • Acid Shale-Pine Forest ACEC/Research Natural Area **Area is in the area withdrawn by Public Land Order 7480, Withdrawal of*	**Action:** Manage 200,600 acres of federal mineral estate as administratively closed to fluid mineral leasing: • State-designated Source Water Protection Areas • NRHP-eligible and -listed historical properties and cultural sites allocated to conservation for future use, traditional use, and public use • Egg Mountain • Lands managed to protect wilderness characteristics • ACECs: o Acid Shale-Pine Forest o Collar Gulch o Judith Mountains Scenic o Blind Horse* o Chute Mountain* o Deep Creek/Battle Creek* o Ear Mountain* o Square Butte**	**Action:** No similar action.	**Action:** o No similar action.	**Action:** Manage 6,400 acres of federal mineral estate as administratively closed to fluid mineral leasing: • NRHP-listed historical properties • ACECs: o Acid Shale-Pine Forest o Blind Horse* o Chute Mountain* o Deep Creek/Battle Creek* o Ear Mountain* o Square Butte** o Sun River* **Area is in the area withdrawn by Public Land Order 7480, Withdrawal of National Forest Lands within Rocky Mountain Front, Montana, and so is closed to fluid mineral leasing. Total acres closed to fluid mineral leasing do not include this area.*

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
National Forest Lands within Rocky Mountain Front, Montana, and so is closed to fluid mineral leasing. If Congress were to reverse the withdrawal, these areas would be closed to leasing. Total acres closed to fluid mineral leasing do not include this area. ***Square Butte ONA overlaps the Square Butte WSA which is closed to leasing. Total acres closed to fluid mineral leasing do not include this overlapping area.*	o Sun River* - NST and NHT management corridors containing High Potential Route Segments and Sites - Pine Butte Swamp Preserve **Area is in the area withdrawn by Public Land Order 7480, Withdrawal of National Forest Lands within Rocky Mountain Front, Montana, and so is closed to fluid mineral leasing. Total acres closed to fluid mineral leasing do not include this area.* ***Square Butte ACEC partially overlaps the Square Butte WSA which is closed to leasing. Total acres closed to fluid mineral leasing do not include this overlapping area.*			***Square Butte ACEC partially overlaps the Square Butte WSA which is closed to leasing. Total acres closed to fluid mineral leasing do not include this overlapping area.*
Open to fluid mineral leasing				
Action: Manage 1,084,700 acres of federal mineral estate as open to fluid mineral leasing on a case-by-case basis	**Action:** Manage 884,100 acres of federal mineral estate as open to fluid mineral leasing	**Action:** Manage 1,086,300 acres of federal mineral estate as open to fluid mineral leasing.	**Action:** Manage 1,084,700 acres of federal mineral estate as open to fluid mineral leasing	**Action:** Manage 1,078,400 acres of federal mineral estate as open to fluid mineral leasing
Open to leasing subject to standard stipulations				
Action: Manage 379,000 acres of federal mineral estate as open to fluid mineral leasing, subject to standard stipulations.	**Action:** Manage 118,700 acres of federal mineral estate as open to fluid mineral leasing, subject to standard stipulations.	**Action:** Manage 636,300 acres of federal mineral estate as open to fluid mineral leasing, subject to standard stipulations.	**Action:** Manage 263,800 acres of federal mineral estate as open to fluid mineral leasing, subject to standard stipulations.	**Action:** Manage 269,600 acres of federal mineral estate as open to fluid mineral leasing, subject to standard stipulations.

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Open to leasing subject to no surface occupancy (NSO)				

Allowable Use:
Apply NSO stipulations to fluid mineral leases in the following areas (58,100 acres of federal mineral estate):
• Within 500 feet or, when necessary, within the 25-year floodplain from reservoirs, lakes, and ponds and intermittent, ephemeral or small perennial streams
• Within 1,000 feet or, when necessary, within the 100-year floodplain from larger perennial streams, rivers, and domestic water supplies
• Within 300 feet from sites eligible or designated as NRHP sites
• Within 500 feet of fishing reservoirs
• Within 300 feet from undeveloped recreational areas receiving concentrated public use
• Within 300 feet from occupied buildings
	Allowable Use:
	Apply NSO stipulations to fluid mineral leases in the following areas (742,300 acres of federal mineral estate):
	• Slopes susceptible to mass failure
	• Sensitive soils
	• Badlands and rock outcrops
	• Within 1,000 feet of perennial or intermittent streams, lakes, ponds, reservoirs, 100-year floodplains, wetlands, and riparian areas
	• Within 0.25 miles from riparian-wetland areas
	• Within 0.5 mile from the centerline of streams or 0.5 mile from bank-full edge of lakes/reservoirs containing Class 1 or 2 fisheries as defined by MFWP Crucial Areas Assessment Game Fish Quality
	• Within 0.25 miles of designated reservoirs with fisheries
	• Within 0.5 miles of the centerline of streams that are identified by the BLM as having high restoration potential for westslope
		Allowable Use:
		Apply NSO stipulations to fluid mineral leases in the following areas (411,700 acres of federal mineral estate):
		• Within 500 feet or, when necessary, within the 25-year flood plain from reservoirs, lakes, and ponds and intermittent, ephemeral or small perennial streams
		• Within 1,000 feet or, when necessary, within the 100-year floodplain from larger perennial streams, rivers, and domestic water supplies
		• Within 500 feet of designated reservoirs with fisheries
		• Within 0.25 miles of a water bird nesting colony for BLM priority species for management
		• Crucial winter range for BLM priority species for management
		• Within 0.5 mile of the perimeter of sharp-tailed grouse leks
		• Within 0.25 miles of raptor nest sites for BLM priority species for management
		• Within 0.5 mile of bald eagle nest sites
		• Within 1 mile of peregrine falcon nest sites
			Apply NSO stipulations to fluid mineral leases in the following areas (421,700 acres of federal mineral estate):
			• ACECs
			  o Acid Shale-Pine Forest
			  o Square Butte ACEC
			• Badlands and rock outcrops
			• Within perennial or intermittent streams, lakes, ponds, reservoirs, 100-year floodplains, wetlands, and riparian areas
			• State-designated Source Water Protection Areas
			• Within 0.25 miles of designated reservoirs with fisheries
			• Within 0.5 mile from the centerline of streams or 0.5 mile from bank-full edge of lakes/reservoirs containing Class 1, 2 fisheries as defined by MFWP Crucial Areas Assessment Game Fish Quality
			• Within 0.5 mile from centerline of streams that are identified by the BLM as having high restoration potential for westslope cutthroat trout, Yellowstone cutthroat trout, Arctic grayling, and/or bull trout
			• Within 0.25 miles of a water bird nesting colony for BLM
				Allowable Use:
				Apply NSO stipulations to fluid mineral leases in the following areas (470,500 acres of federal mineral estate):
				• Badlands and rock outcrops
				• Within perennial or intermittent streams, lakes, ponds, reservoirs, 100-year floodplains, wetlands, and riparian areas
				• State-designated Source Water Protection Areas
				• Within 0.25 miles of designated reservoirs with fisheries
				• Within 0.5 mile from the centerline of streams or 0.5 mile from bank-full edge of lakes/reservoirs containing Class 1, 2 fisheries as defined by MFWP Crucial Areas Assessment Game Fish Quality
				• Within 0.5 mile from centerline of streams that are identified by the BLM as having high restoration potential for westslope cutthroat trout, Yellowstone cutthroat

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
	cutthroat trout, Yellowstone cutthroat trout, Arctic grayling, and/or bull trout • Within 0.25 miles of a water bird nesting colony for BLM priority species for management • Crucial winter range for BLM priority species for management • Within 0.5 mile of the perimeter of sharp-tailed grouse leks • Within 0.25 miles of identified bat maternity roosts and hibernation areas • Within 0.25 miles of raptor nest sites for BLM priority species for management • Within 0.5 mile of bald eagle nest sites • Within 1 mile of peregrine falcon nest sites • Within 0.25 miles of piping plover nesting habitat • Within 0.25 miles of prairie dog colonies • Bighorn sheep lambing areas • Within 0.25 miles of the water's edge of the	• Within 0.25 miles of piping plover nesting habitat • Within 0.25 miles of prairie dog colonies • Bighorn sheep lambing areas • Within 0.25 miles of the water's edge of the Missouri River to protect pallid sturgeon • Mountain plover habitat • Greater sage-grouse SFAs • Greater sage-grouse PHMA • NRHP-eligible properties/districts • Egg Mountain and the Blacktail Paleontological Area • Within 300 feet of residential structures • Within NST and NHT management corridors containing High Potential Route Segments and Sites • Within 300 feet or within the viewshed (whichever is less) from NST and NHT centerlines • Pine Butte Swamp Preserve	priority species for management • Crucial winter range for BLM priority species for management • Within 0.5 mile of the perimeter of sharp-tailed grouse leks • Within 0.25 miles of identified bat maternity roosts and hibernation areas • Within 0.25 miles of raptor nest sites for BLM priority species for management • Within 0.5 miles of bald eagle nest sites • Within 1 mile of peregrine falcon nest sites • Within 0.25 miles of piping plover nesting habitat • Within 0.25 miles of prairie dog colonies • Bighorn sheep lambing areas • Within 0.25 miles of the water's edge of the Missouri River to protect pallid sturgeon • Mountain plover habitat • Greater sage-grouse SFAs • Greater sage-grouse PHMA • NRHP-eligible properties/districts and cultural sites allocated to conservation for future use, traditional use, and public use	trout, Arctic grayling, and/or bull trout • Within 0.25 miles of a water bird nesting colony for BLM priority species for management • Crucial winter range for BLM priority species for management • Within 0.5 mile of the perimeter of sharp-tailed grouse leks • Within 0.25 miles of identified bat maternity roosts and hibernation areas • Within 0.25 miles of raptor nest sites for BLM priority species for management • Within 0.5 miles of bald eagle nest sites • Within 1 mile of peregrine falcon nest sites • Within 0.25 miles of piping plover nesting habitat • Within 0.25 miles of prairie dog colonies • Bighorn sheep lambing areas • Within 0.25 miles of the water's edge of the Missouri River to protect pallid sturgeon • Mountain plover habitat

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
	Missouri River to protect pallid sturgeon • Mountain plover habitat • Greater sage-grouse SFAs • Greater sage-grouse PHMA • Within and including a 0.25 miles buffer from developed recreation sites and dispersed recreation sites receiving concentrated public use • BCAs: o Arrow Creek BCA o Cemetery Road BCA o Crooked Creek BCA o Judith Mountains BCA • Within 0.25 miles of incorporated city limits or residential structures • Blacktail Creek ACEC • Within 0.5 mile of the remainder of NSTs and NHTs (i.e., trail corridors not containing High Potential Route Segments and Sites) • Within 0.5 mile of either side of auto tour routes for NSTs and NHTs • Within the study corridor of WSR suitable segments classified as Wild • Split-estate lands with conservation easements		• Egg Mountain and the Blacktail Paleontological Area	• Greater sage-grouse SFAs • Greater sage-grouse PHMA • NRHP-eligible properties/districts and cultural sites allocated to conservation for future use, traditional use, and public use • Egg Mountain and the Blacktail Paleontological Area • Lands managed to protect wilderness characteristics • Within developed recreation areas and undeveloped recreation areas receiving concentrated public use • Within 0.25 miles of developed recreation sites, regardless of administering agency • Within 0.5 mile of the Continental Divide NST • Within the National Trail Management Corridor of designated NSTs (i.e., Lewis and Clark Trail and the Nez Perce Trail) • Within 0.25 miles of either side of auto tour routes for NSTs and NHTs

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
	• Rocky Mountain Front Conservation Area			• Pine Butte Swamp Preserve **NSO and CSU stipulations for fluid minerals leasing may overlap and therefore cannot be added.*
Open to leasing subject to controlled surface use (CSU)				
Allowable Use: Apply CSU stipulations to oil and gas leases in the following areas (280,800 acres of federal mineral estate): • On slopes over 30 percent or 20 percent on extremely erodible or slumping soils • Within 100 feet from the edge of the ROW from highways, designated county roads and appropriate federally-owned or controlled roads and recreation trails • Seasonal road closures, roads for special uses, specified roads during heavy traffic periods and areas having restrictive off-road vehicle designations (JVP Appendix B, Alternative A)	**Allowable Use:** Apply CSU stipulations to fluid mineral leases in the following areas (239,700 acres of federal mineral estate): • Groundwater recharge areas for the Madison Aquifer • Alluvial material of modern day channels of the Musselshell and Judith Rivers • Winter range for pronghorn, elk, moose, bighorn sheep, mule and whitetail deer • Elk calving grounds • Bighorn sheep range • VRM Class II • WSR suitable segments classified as Scenic or Recreational • Within 2 miles of a lek within GHMA	**Allowable Use:** Apply CSU stipulations to fluid mineral leases in the following areas (133,200 acres of federal mineral estate): • Winter range for pronghorn, elk, moose, bighorn sheep, mule and whitetail deer • Elk calving grounds • Bighorn sheep range • VRM Class II • Within 2 miles of a lek within GHMA	Apply CSU stipulations to fluid mineral leases in the following areas (629,000 acres of federal mineral estate): • BCAs o Crooked Creek o Arrow Creek • Sensitive soils • Within 300 feet of riparian and/or wetland areas • Winter range for pronghorn, elk, moose, bighorn sheep, mule and whitetail deer • Elk calving grounds • Bighorn sheep range • VRM Class II • Within 2 miles of a lek within GHMA	**Allowable Use:** Apply CSU stipulations to fluid mineral leases in the following areas (632,900 acres of federal mineral estate): • Sensitive soils • Within 300 feet of riparian and/or wetland areas • Winter range for pronghorn, elk, moose, bighorn sheep, mule and whitetail deer • Elk calving grounds • Bighorn sheep range • VRM Class II • Within 2 miles of a lek within GHMA

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Nonenergy Solid Leasable Minerals				
Closed to nonenergy solid mineral leasing				
Closed per withdrawal orders				
Allowable Use: Manage 110,200 acres of federal mineral estate as closed to nonenergy solid mineral leasing in accordance with withdrawal orders	**Allowable Use:** Same as Alternative A.	**Allowable Use:** Manage 108,500 acres of federal mineral estate as closed to nonenergy solid mineral leasing in accordance with withdrawal orders.	**Allowable Use:** Same as Alternative A.	**Allowable Use:** Same as Alternative A.
Closed per BLM policy				
Allowable Use: Manage WSAs (1,900 acres) as closed to nonenergy solid mineral leasing in accordance with BLM policy (see BLM Manual 6330, BLM 2012b)	**Allowable Use:** Same as Alternative A.	**Allowable Use:** Same as Alternative A.	**Allowable Use:** Same as Alternative A.	**Allowable Use:** Same as Alternative A.
Administratively closed				
Allowable Use: Manage 283,700 acres of federal mineral estate as administratively closed to nonenergy leasable mineral exploration and/or development: • Greater sage-grouse PHMA	**Allowable Use:** Manage 445,400 acres of federal mineral estate as administratively closed to nonenergy leasable mineral exploration and/or development: • Greater sage-grouse PHMA • NRHP-eligible and -listed historical properties and cultural sites allocated to conservation for future use, traditional use, and public use • Lands managed to protect wilderness characteristics	**Allowable Use:** Manage 283,700 acres of federal mineral estate as administratively closed to nonenergy leasable mineral exploration and/or development: • Greater sage-grouse PHMA • NST and NHT corridors containing High Potential Route Segments and Sites	**Allowable Use:** Manage 284,100 acres of federal mineral estate as administratively closed to nonenergy leasable mineral exploration and/or development: • Greater sage-grouse PHMA • NST and NHT corridors containing High Potential Route Segments and Sites • ACECs o Square Butte	**Allowable Use:** Manage 381,800 acres of federal mineral estate as administratively closed to nonenergy leasable mineral exploration and/or development: • Greater sage-grouse PHMA • NRHP-listed historical properties • Lands managed to protect wilderness characteristics • ACECs: o Collar Gulch o Sun River*

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
	• ACECs: o Acid Shale-Pine Forest o Blacktail Creek o Collar Gulch o Judith Mountains Scenic o Sun River* • WSR-suitable segments classified as Wild • NST and NHT corridors containing High Potential Route Segments and Sites **Area is in the area withdrawn by Public Land Order 7480, Withdrawal of National Forest Lands within Rocky Mountain Front, Montana, and so is closed to nonenergy mineral leasing. If Congress were to reverse the withdrawal, this area would be closed to leasing. Total acres closed to nonenergy mineral leasing do not include this area.*			• NST and NHT corridors containing High Potential Route Segments and Sites **Area is in the area withdrawn by Public Land Order 7480, Withdrawal of National Forest Lands within Rocky Mountain Front, Montana, and so is closed to nonenergy mineral leasing. If Congress were to reverse the withdrawal, the area would be closed to leasing. Total acres closed to nonenergy mineral leasing do not include this area.*
Open to nonenergy solid mineral leasing				
Allowable Use: Manage 801,000 acres of federal mineral estate as open for consideration for nonenergy leasable mineral exploration and/or development	**Allowable Use:** Manage 639,300 acres of federal mineral estate as open for consideration for nonenergy leasable mineral exploration and/or development	**Allowable Use:** Manage 801,000 acres of federal mineral estate as open for consideration for nonenergy leasable mineral exploration and/or development	**Allowable Use:** Manage 800,600 acres of federal mineral estate as open for consideration for nonenergy leasable mineral exploration and/or development	**Allowable Use:** Manage 702,900 acres of federal mineral estate as open for consideration for nonenergy leasable mineral exploration and/or development

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Locatable Minerals				
Withdrawn from locatable mineral entry				
Allowable Use: Manage 23,500 acres of BLM surface as withdrawn from locatable mineral entry in accordance with withdrawal orders.	**Allowable Use:** Same as Alternative A.	**Allowable Use:** Manage 23,200 acres of BLM surface as withdrawn from locatable mineral entry in accordance with withdrawal orders.	**Allowable Use:** Same as Alternative A.	**Allowable Use:** Same as Alternative A.
Propose for Withdrawal from locatable mineral entry				
Allowable Use: No similar action.	**Allowable Use:** Propose 198,400 acres of BLM surface for withdrawal from locatable mineral entry): • Crystal Cave • ACECs: o Blacktail Creek o Blind Horse* o Chute Mountain* o Deep Creek/Battle Creek* o Ear Mountain* o Sun River* o Collar Gulch o Acid Shale-Pine Forest o Square Butte • Egg Mountain • Lands managed to protect wilderness characteristics • NHT and NST corridors containing high potential route segments and sites • Suitable WSR segments classified as Wild **Area is in the area withdrawn by Public Land*	**Allowable Use:** No similar allowable use.	**Allowable Use:** • No similar allowable use.	**Allowable Use:** Propose 5,400 acres of BLM surface for withdrawal from locatable mineral entry: • Crystal Cave • ACECs: o Blind Horse* o Chute Mountain* o Deep Creek/Battle Creek* o Ear Mountain* o Sun River* o Square Butte o Collar Gulch • NHT and NST corridors containing high potential route segments and sites **Area is in the area withdrawn by Public Land Order 7480, Withdrawal of National Forest Lands within Rocky Mountain Front, Montana, and so is withdrawn from locatable mineral entry. If Congress were to reverse the withdrawal, the BLM would propose this area for withdrawal. Total acres*

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
	Order 7480, Withdrawal of National Forest Lands within Rocky Mountain Front, Montana, and so is withdrawn from locatable mineral entry. If Congress were to reverse the withdrawal, the BLM would propose this area for withdrawal. Total acres proposed for withdrawal do not include this area.			*proposed for withdrawal do not include this area.*
Open for locatable mineral entry				
Action: Allow mineral exploration and development (locatable minerals) under the General Mining Law of 1872 on 628,000 acres of BLM surface not withdrawn from locatable mineral entry. Regulate locatable mineral exploration and development on BLM-administered land under 43 CFR 3800.	**Allowable Use:** Same as Alternative A.	**Action:** Same as Alternative A.	**Allowable Use:** Same as Alternative A.	**Allowable Use:** Same as Alternative A.
Mineral Materials (Salable Minerals)				
Closed to mineral material disposal				
Allowable Use: Manage 299,600 acres of federal mineral estate as closed to mineral material disposal**:** • Conservation Management Areas (CMAs)	**Allowable Use:** Manage 463,100 acres of federal mineral estate as closed to mineral material disposal: • Conservation Management Areas (CMAs)	**Allowable Use:** Manage 4,200 acres of federal mineral estate as closed to mineral material disposal: • Egg Mountain • Blacktail Paleontological Area • NST and NHT corridors containing High Potential Route Segments and Sites	**Allowable Use:** Manage 17,200 acres of federal mineral estate as closed to mineral material disposal: • Conservation Management Areas (CMAs) • Egg Mountain • ACECs o Square Butte	**Allowable Use:** Manage 399,200 acres of federal mineral estate as closed to mineral material disposal: • Conservation Management Areas (CMAs)

Alternative A (No Action)	**Alternative B**	**Alternative C1 (Preferred Alternative)**	**Alternative C2 (Proposed Alternative)**	**Alternative D**
• Greater sage-grouse PHMA (closed to mineral material sales) • Blind Horse ONA • Chute Mountain ONA • Deep Creek/Battle Creek ONA Ear Mountain ONA • WSAs (except for as described in Section 1.6.C.5.b of BLM Manual 6330 (BLM 2012b)	• Greater sage-grouse PHMA (closed to mineral material sales) • NRHP-eligible and -listed historical properties and cultural sites allocated to conservation for future use, traditional use, and public use • Egg Mountain • Lands managed to protect wilderness characteristics • ACECs: o Acid Shale-Pine Forest o Blind Horse o Blacktail Creek o Chute Mountain o Collar Gulch o Deep Creek/Battle Creek o Ear Mountain o Judith Mountains Scenic • NST and NHT corridors containing High Potential Route Segments and Sites • WSR-suitable segments classified as Wild • WSAs (except for as described in Section 1.6.C.5.b of BLM Manual 6330 (BLM 2012b)	• WSAs (except for as described in Section 1.6.C.5.b of BLM Manual 6330 (BLM 2012b)	• WSAs (except for as described in Section 1.6.C.5.b of BLM Manual 6330 (BLM 2012b) • Blacktail Paleontological Area	• Greater sage-grouse PHMA (closed to mineral material sales) • NRHP-listed historical properties • Egg Mountain • Lands managed to protect wilderness characteristics • ACECs: o Collar Gulch o Blind Horse o Chute Mountain o Deep Creek/Battle Creek o Ear Mountain • NST and NHT corridors containing High Potential Route Segments and Sites • WSAs (except for as described in Section 1.6.C.5.b of BLM Manual 6330 (BLM 2012b)

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Open to mineral material disposal				
Allowable Use: Manage 897,200 acres of federal mineral estate as open for mineral material disposal	**Allowable Use:** Manage 733,700 acres of federal mineral estate as open for mineral material disposal	**Allowable Use:** Manage 1,192,600 acres of federal mineral estate as open for mineral material.	**Allowable Use:** Manage 1,179,600 acres of federal mineral estate as open for mineral material disposal	**Allowable Use:** Manage 797,600 acres of federal mineral estate as open for mineral material disposal

U.3 VISUAL RESOURCE MANAGEMENT

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Allowable Use: Adopt the VRM classes as follows: • Class I: 15,700 acres • Class II: 105,000 acres • Class III: 193,300 acres • Class IV: 280,500 acres • Unassigned: 56,700 acres	**Allowable Use:** Adopt the VRM classes as follows: • Class I: 16,900 acres • Class II: 329,500 acres • Class III: 92,400 acres • Class IV: 212,400 acres	**Allowable Use:** Adopt the VRM classes as follows. • Class I: 2,700 acres • Class II: 14,100 acres • Class III: 292,900 acres • Class IV: 341,500 acres	**Allowable Use:** Adopt the VRM classes as follows: • Class I: 15,700 acres • Class II: 107,200 acres • Class III: 186,800 acres • Class IV: 341,500 acres	**Allowable Use:** Adopt the VRM classes as follows: • Class I: 15,900 acres • Class II: 125,300 acres • Class III: 235,600 acres • Class IV: 274,400 acres
Action: Manage 15,700 acres as VRM Class I: • WSAs • Rocky Mountain Front CMA (also covered by ACECs) • ACECs/ONAs: o Blind Horse o Chute Mountain o Deep Creek/Battle Creek o Ear Mountain	**Action:** Manage 16,900 acres as VRM Class I: • WSAs • Rocky Mountain Front CMA (also covered by ACECs) • ACECs: o Blind Horse o Chute Mountain o Deep Creek/Battle Creek o Ear Mountain o Square Butte • Suitable WSR segments classified as Wild	**Action:** Manage 2,700 acres as VRM Class I: • WSAs	**Action:** Manage 15,700 acres as VRM Class I: • WSAs • Rocky Mountain Front CMA	**Action:** Manage 15,900 acres as VRM Class I: • WSAs • Rocky Mountain Front CMA (also covered by ACECs) • ACECs: o Blind Horse o Chute Mountain o Deep Creek/Battle Creek o Ear Mountain

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Action: Manage 105,000 acres as VRM Class II, including, but not limited to, the following: • Judith River SRMA • Judith Mountains Scenic ACEC	**Action:** Manage 329,500 acres as VRM Class II, including, but not limited to, the following: • Lands managed to protect wilderness characteristics • Lowry Bridge • Judith Mountains Scenic ACEC • BCAs,: o Arrow Creek BCA o Cemetery Road BCA o Crooked Creek BCA o Judith Mountains BCA • Lewis and Clark National Historic and Continental Divide NST corridors (unless the adjacent landscape is VRM I) • Suitable WSR segments classified as Scenic	**Action:** Manage 14,100 acres as VRM Class II.	**Action:** Manage 107,200 acres as VRM Class II., including, but not limited to, the following: • Square Butte ACEC (900 acres) • Arrow Creek BCA • Crooked Creek BCA	**Action:** Manage 125,300 acres as VRM Class II, including, but not limited to, the following: • Lands managed to protect wilderness characteristics • Square Butte ACEC • ERMAs: o Portion of Judith (100 acres o Portion of Snowy Mountain (390 acres)

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Action: Manage 193,300 acres as VRM Class III.	**Action:** Manage 92,400 acres as VRM Class III, including, but not limited to, the following: • Nez Perce NHT corridor (unless the adjacent landscape is VRM I or II) • Suitable WSR segments classified as Recreational)	**Action:** Manage 292,900 acres as VRM Class III, including, but not limited to, the following: • SRMAs: o Judith Mountains o Portion of Snowy Mountains (390 acres) • ERMAs: o Arrow Creek o Crooked Creek o Portion of Judith Mountains (450 acres) NHT and NST corridors (unless the adjacent landscape is VRM I or II)	**Action:** Manage 186,800 acres as VRM Class III, including, but not limited to, the following: • SRMAs: o Judith o Portion of Snowy Mountains • ERMA o Portion of Judith Reservoirs • NHT and NST corridors (unless the adjacent landscape is VRM I or II)	**Action:** Manage 235,600 acres as VRM Class III, including, but not limited to, the following: • SRMAs: o Durfee Hills o Judith Mountains o Lowry Bridge • Portion of Judith ERMA (300 acres; NHT and NST corridors (unless the adjacent landscape is VRM I or II)
Action: Manage 280,500 acres as VRM Class IV.	**Action:** Manage 211,400 acres as VRM Class IV.	**Action:** Manage 341,500 acres as VRM Class IV, including, but not limited to, the following: • SRMAs: o Lowry Bridge o North Moccasin o Portion of Snowy Mountains (80 acres) • ERMAs: o Cemetery Road o Portion of Judith Mountains (550 acres)	**Action:** Manage 341,500 acres as VRM Class IV, including, but not limited to, the following: • Acid Shale-Pine Forest ACEC (2,700 acres) • ERMA o Portion of Judith Reservoirs • SRMAs: o Portion of Snowy Mountains o North Moccasins o Lowry Bridge	**Action:** Manage 274,400 acres as VRM Class IV, including, but not limited to, the following: • ERMAs: o Portion of Judith (400 acres) o North Moccasin o Portion of Snowy Mountain (80 acres)

U.4 TRAVEL AND TRANSPORTATION MANAGEMENT

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Action: Manage the following areas (2,700 acres) as Closed* to motorized travel: • Square Butte ACECs/ONA (JVP) **Closed to motorized travel means closed to any and all motorized vehicles, with no exceptions.*	**Action:** Manage the following areas (209,000 acres) as Closed* to motorized travel: • Lands managed to protect wilderness characteristics • Durfee Hills • ACECs: o Blind Horse o Chute Mountain o Deep Creek/Battle Creek o Ear Mountain • WSAs **Closed to motorized travel means closed to any and all motorized vehicles, with no exceptions.*	**Action:** Manage the following areas (2,700 acres) as closed to motorized travel*: • WSAs **Closed to motorized travel means closed to any and all motorized vehicles, with no exceptions.*	**Action:** Manage the following areas (2,700 acres) as Closed* to motorized travel: • WSAs **Closed to motorized travel means closed to any and all motorized vehicles, with no exceptions.*	**Action:** Same as Alternative C
Allowable Use: Allocate the decision area as follows for OHV travel: • 13,000 acres closed* • 487,700 acres limited yearlong • 147,800 acres limited seasonally **Closed to OHV travel means closed to those modes of travel that meet the OHV definition, including exclusions, at 8340.0-5(a).*	**Allowable Use:** Allocate the decision area as follows for OHV travel: • 0 acres closed* • 413,500 acres limited yearlong • 28,700 acres limited seasonally **See areas closed to motorized travel in row above; 209,000 acres are closed to motorized travel but 0 acres are closed to modes of travel that meet the OHV definition, including exclusions, at 8340.0-5(a).*	**Allowable Use:** Allocate the decision area as follows for OHV travel: • 0 acres closed* • 500,600 acres limited yearlong • 147,800 acres limited seasonally **Closed to OHV travel means closed to those modes of travel that meet the OHV definition, including exclusions, at 8340.0-5(a).*	**Allowable Use:** Allocate the decision area as follows for OHV travel: • 13,000 acres closed* • 487,700 acres limited yearlong • 147,800 acres limited seasonally **Closed to OHV travel means closed to those modes of travel that meet the OHV definition, including exclusions, at 8340.0-5(a).*	**Allowable Use:** Same as Alternative C

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Action: Manage the following areas as closed to OHV travel: • ACECs/ONAs: o Blind Horse o Chute Mountain o Deep Creek/Battle Creek Ear Mountain (JVP) • Conservation Management Areas (CMAs)	**Action:** No similar action (see areas closed to motorized travel, since the ACECs listed above are closed to motorized travel, the CMAs are also closed to motorized travel).	**Action:** No similar action.	**Action:** Manage the following areas as closed to OHV travel: • Conservation Management Areas (CMAs)	**Action:** Manage the following areas as closed to OHV travel: • Conservation Management Areas (CMAs)
Action: Manage 487,700 acres, including the following areas, as limited to designated routes yearlong for OHV travel: • WSAs • ACECs: o Acid Shale-Pine Forest (JVP) o Judith Mountains Scenic (JVP) • North and South Moccasins and Judith Mountains (JVP) • Portion of the Snowies	**Action:** Manage 413,500 acres, including the following areas, as limited to designated routes yearlong for OHV travel: • ACECs: o Acid Shale-Pine Forest o Judith Mountains Scenic o Square Butte	**Action:** Manage 500,600 acres, including the following areas, as limited to designated routes yearlong for OHV travel: • ACEC: o Collar Gulch	**Action:** Manage 487,700 acres, including the following areas, as limited to designated routes yearlong for OHV travel: • ACECs: o Acid Shale-Pine Forest o Square Butte • ERMAs: o Judith Reservoirs ERMA o Crooked Creek and Arrow Creek BCAs • SRMAs: o Judith SRMA o Snowy Mountains SRMA o North Moccasins SRMA o Lowry Bridge SRMA	**Action:** Manage 487,700 acres as follows: • OHV limited area o Lands managed to protect wilderness characteristics (*route-specific decisions will occur during implementation-level planning*) • Limited to designated routes yearlong for OHV travel: o Acid Shale-Pine Forest ACEC o Square Butte ACEC
Action: Seasonally limit OHV travel to designated routes in the following areas (147,800	**Action:** Seasonally limit OHV travel and promote nonmotorized travel in the Chain Buttes and East Indian	**Action:** Seasonally limit OHV travel and promote nonmotorized travel in the Chain Buttes	**Action:** Seasonally limit OHV travel and promote nonmotorized travel in the Chain Buttes	**Action:** Seasonally limit OHV travel and promote nonmotorized travel in the Chain Buttes

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
acres). The seasonal limitation, September 1 through December I, is based on the big game hunting season. If the hunting season were to change, the seasonal limitation would be modified accordingly. - The Missouri Breaks area to protect fragile soils, reduce user conflicts, and maintain and improve water quality. This area includes the Missouri Breaks, Chain Buttes, Two Calf, Armells Creek, Fargo Coulee, Indian Buttes, Crooked Creek, Dunn Ridge, Dog Creek and Woodhawk. (JVP) - Blacktail Coulee and Yellow Water areas to reduce user conflicts and improve water quality. (JVP)	Butte Block Management Areas (BMAs; 28,700 acres*) to reduce user conflicts and enhance recreational experiences. The seasonal limitation, September 1 through December I, is based on the big game hunting season. Travel would be limited from 10 am to 2 pm for game retrieval only. If the hunting season were to change, the seasonal limitation would be modified accordingly as an implementation-level decision. **Portions of the Chain Buttes and East Indian Butte BMAs overlap areas that are closed to OHV travel in this alternative. Those acres are not included in the total seasonal limitation.*	and East Indian Butte BMAs (147,800 acres) to reduce user conflicts and enhance recreational experiences. The seasonal limitation, September 1 through December I, is based on the big game hunting season. Travel would be limited from 10 am to 2 pm for game retrieval only. If the hunting season were to change, the seasonal limitation would be modified accordingly as an implementation-level decision.	and East Indian Butte BMAs (147,800 acres) to reduce user conflicts and enhance recreational experiences. The seasonal limitation, September 1 through December I, is based on the big game hunting season. Travel would be limited from 10 am to 2 pm for game retrieval only. If the hunting season were to change, the seasonal limitation would be modified accordingly as an implementation-level decision.	and East Indian Butte BMAs (147,800 acres*) to reduce user conflicts and enhance recreational experiences. The seasonal limitation, September 1 through December I, is based on the big game hunting season. Travel would be limited from 10 am to 2 pm for game retrieval only. If the hunting season were change, the seasonal limitation would be modified accordingly as an implementation-level decision. **Portions of the Chain Buttes and East Indian Butte BMAs overlap areas that are closed to OHV travel in this alternative. Those acres are not included in the total seasonal limitation.*
Allowable Use: Allocate the decision area as follows for mechanized travel: - 648,500 acres open - 2,700 acres limited (WSAs)	**Allowable Use:** Allocate the decision area as follows for mechanized travel: - 446,100 acres open - 205,100 acres closed	**Allowable Use:** Allocate the decision area as follows for mechanized travel: - 648,500 acres open - 2,700 acres closed	**Allowable Use:** Allocate the decision area as follows for mechanized travel: - 502,200 acres open - 2,700 acres closed - 146,300 acres limited	**Allowable Use:** Allocate the decision area as follows for mechanized travel: - 503,700 acres open - 2,700 acres closed - 144,800 acres limited

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Action: No similar action.	**Action:** Manage the following areas as closed to mechanized travel: • Lands managed to protect wilderness characteristics • WSAs	**Action:** Manage the following areas as closed to mechanized travel: • WSAs	**Action:** Manage the following areas as closed to mechanized travel: • WSAs	**Action:** Manage the following areas as closed to mechanized travel: • WSAs
Action: No similar action.		**Action:** No similar action.	**Action:** Manage the following areas as limited to designated routes yearlong for mechanized travel: • ACEC o Acid Shale-Pine Forest ACEC o Square Butte ACEC o • ERMA o Judith Reservoirs • BCA o Crooked Creek and Arrow Creek BCAs • SRMAs o Judith SRMA o Snowy Mountains SRMA o North Moccasins SRMA o Lowry Bridge SRMA • Conservation Management Areas (CMAs)	**Action:** Manage the following areas as limited to designated routes yearlong for mechanized travel: • Lands managed to protect wilderness characteristics (exception: allow for cross-country mechanized travel for big game retrieval) • ACEC/ONAs • SRMAs

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Action: No similar action.	**Action:** Prohibit motorized cross-country OSV travel in the following locations (220,200 acres): • Lands managed to protect wilderness characteristics • WSAs • ACECs: o Blind Horse o Chute Mountain o Deep Creek/Battle Creek o Ear Mountain • Areas with winter restrictions • Crucial wildlife winter range • Conservation Management Areas (CMAs)	**Action:** Prohibit motorized cross-country OSV travel in the following locations (18,200 acres): • WSAs • Crucial wildlife winter range	**Action:** Prohibit motorized cross-country OSV travel in the following locations (28,400 acres): • WSAs • Crucial wildlife winter range • Conservation Management Areas (CMAs)	**Action:** Prohibit motorized cross-country OSV travel in the following locations (30,700 acres): • WSAs • ACECs: o Blind Horse o Chute Mountain o Deep Creek/Battle Creek o Ear Mountain • Areas with winter restrictions • Crucial wildlife winter range • Conservation Management Areas (CMAs)
Allowable Use: Allow motorized cross-country OSV travel on 651,200 acres.	**Allowable Use:** Allow motorized cross-country OSV travel on 431,000 acres. Motorized cross-country OSVs (with the exception of administrative and emergency use) are subject to the following management guidelines: Avoid locations where wind or topographic conditions may have reduced snow depth and created situations where damage to vegetation or soils could occur, or where the majority of vegetation is taller than the protective snow cover. Sensitive areas could be closed to motorized OSV travel if resource	**Allowable Use:** Motorized cross-country OSVs (with the exception of administrative and emergency use) are subject to the following management guidelines: Avoid locations where wind or topographic conditions may have reduced snow depth and created situations where damage to vegetation or soils could occur, or where the majority of vegetation is taller than the protective snow cover. Sensitive areas could be closed to motorized OSV travel if resource damage is	**Allowable Use:** Allow motorized cross-country OSV travel on 620,000 acres. Motorized cross-country OSVs (with the exception of administrative and emergency use) are subject to the following management guidelines: Avoid locations where wind or topographic conditions may have reduced snow depth and created situations where damage to vegetation or soils could occur, or where the majority of vegetation is	**Allowable Use:** Allow motorized cross-country OSV travel on 620,500 acres. Motorized cross-country OSVs (with the exception of administrative and emergency use) are subject to the following management guidelines: Avoid locations where wind or topographic conditions may have reduced snow depth and created situations where damage to vegetation or soils could occur, or where the majority of vegetation is

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
	damage is found to be occurring in these areas. Additional management guidance regarding the use of OSVs, such as area closures, seasonal closures, or limiting their use to designated roads, primitive roads, and trails may be considered and implemented in subsequent travel management plans.	found to be occurring in these areas.	taller than the protective snow cover. Sensitive areas could be closed to motorized OSV travel if resource damage is found to be occurring in these areas. Additional management guidance regarding the use of OSVs, such as area closures, seasonal closures, or limiting their use to designated roads, primitive roads, and trails may be considered and implemented in subsequent travel management plans.	taller than the protective snow cover. Sensitive areas could be closed to motorized OSV travel if resource damage is found to be occurring in these areas. Additional management guidance regarding the use of OSVs, such as area closures, seasonal closures, or limiting their use to designated roads, primitive roads, and trails may be considered and implemented in subsequent travel management plans.

U.5 LANDS WITH WILDERNESS CHARACTERISTICS (LWC)

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Action: No similar action.	**Action:** Manage 202,400 acres in the following areas to protect wilderness characteristics: • Armells Creek (1,100 acres) • Big Snowies Tack-On B-1 (150 acres) • Big Snowies Tack-On B-2 (310 acres) • Big Snowies Tack-On B-3 (110 acres) • Big Snowies Tack-On B-4 (40 acres) • Biggett (5,000 acres) • Blind Horse Creek (4,900 acres) • Blood Creek (20,800 acres) • Carroll Coulee (6,900 acres) • Carter Coulee (12,400 acres) • Cemetery Road (10,900 acres) • Chain Buttes (7,700 acres) • Chimney Bend (2,600 acres) • Chute Mountain (3,200 acres) • Cottonwood (13,100 acres) • Deep Creek/Battle Creek (3,100 acres) • Dog Creek South (3,000 acres) • Dovetail Creek (15,900 acres) • Drag Creek (22,000 acres) • Dunn Ridge (10,100 acres) • Ear Mountain A (1,000 acres) • Ear Mountain B (760 acres) • Fargo Coulee (640 acres)	**Action:** No similar action. (Areas with wilderness characteristics would not be managed to protect those characteristics.)	**Action:** No similar action. (Areas with wilderness characteristics would not be managed to protect those characteristics.)	**Action:** Manage 100,368 acres in the following areas to protect wilderness characteristics: • Carroll Coulee (6,900 acres) • Chain Buttes (7,700 acres) • Dovetail Creek (15,900 acres) • Drag Creek (22,000 acres) • Dunn Ridge (10,100 acres) • Fort Musselshell Tack-On B (610 acres) • Horse Camp Trail (11,900 acres) • Spear Coulee (5,000 acres) • West Crooked Creek (20,300 acres)

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
	• Fort Musselshell Tack-On A (1,400 acres) • Fort Musselshell Tack-On B (610 acres) • Horse Camp Trail (11,900 acres) • Little Crooked Creek (12,200 acres) • Missouri River Island MT-075-126 (20 acres) • Spear Coulee (5,000 acres) • Thompson Coulee (5,400 acres) • West Crooked Creek (20,300 acres)			
Action: No similar action.	**Action:** Apply the following management to lands managed to protect wilderness characteristics: • VRM Class II • ROW exclusion (including for wind, solar, and hydropower projects) • Closed to construction of new roads • Closed to motorized and mechanized travel • Prohibit route maintenance • Prohibit new or expanded range improvements (structural and nonstructural) • Closed to wood product sales or harvest • Closed to mineral material disposal • Closed to nonenergy solid mineral leasing		**Action:** No similar action. (Areas with wilderness characteristics would not be managed to protect those characteristics.)	**Action:** Apply the following management to lands managed to protect wilderness characteristics: • VRM Class II • ROW avoidance. (ROWs would only be granted where mitigation could be applied to protect wilderness characteristics) • ROW exclusion area for wind, solar, and hydropower projects • OHV limited area • Limit mechanized travel to designated routes, except for game retrieval • Allow route maintenance (e.g., washouts) in a manner consistent with the long-

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
	• Recommend to the Secretary of the Interior withdrawal from locatable mineral entry • Allow construction of new non-range related structures and facilities in a manner consistent with the long-term preservation of wilderness characteristics • Vegetation treatments and prescribed fire would be allowed to maintain or improve naturalness in the long term. Prescribed fire would be emphasized over mechanical treatments.			term preservation of wilderness characteristics • Permit new range improvement projects to support land health objectives only if it can be shown that they would maintain and not degrade wilderness characteristics over the long term • Allow maintenance of existing range improvement facilities in a manner consistent with the long-term preservation of wilderness characteristics • Allow vegetation treatments using fire and mechanical techniques in a manner that would maintain and not degrade wilderness characteristics over the long term, while protecting the wildland-urban interface. • Closed to commercial wood product sales or harvest (allow harvest for personal use under 5450-5 permits) • Closed to mineral material disposal • Closed to nonenergy solid mineral leasing • Require a mine plan for locatable mineral development

U.6 AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Acid Shale-Pine Forest ACEC				
Action: Manage 2,700 acres as the Acid Shale-Pine Forest ACEC/Research Natural Area to protect an endemic plant community unique to the area and a fragile watershed. Allow research to determine the effects of grazing, fire, etc. on this type of plant community. Management actions are as follows: • Allow research at War Horse Unit (900 acres) and maintain Briggs Coulee (1,800 acres) as a control site • Prohibit disposal of forest products unless necessary for stand preservation • OHV travel limited to designated routes yearlong • Intensive wildfire suppression • Closed to geothermal leasing (BLM 2008b, pp. 2-2 – 2-3) • ROW avoidance (JVP)	**Action:** Manage 2,700 acres as the Acid Shale-Pine Forest ACEC to protect an endemic plant community unique to the area that has developed because of unique Volberg soils. Allow research to determine the effects of grazing, fire, etc. on this type of plant community. Management actions are as follows: • Recommend for designation as a Research Natural Area • ROW exclusion • Closed to mineral material disposal • Closed to nonenergy solid mineral leasing • Closed to fluid mineral leasing • Recommend for withdrawal from locatable mineral entry • Allow research at War Horse Unit (900 acres) and maintain Briggs Coulee (1,800 acres) as a control site • Prohibit disposal of forest products unless necessary for stand preservation • OHV travel limited to designated routes yearlong	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** Manage 2,700 acres as the Acid Shale-Pine Forest ACEC to protect an endemic plant community unique to the area that has developed because of unique Volberg soils. Allow research to determine the effects of grazing, fire, etc. on this type of plant community. Management actions are as follows: • Allow research at War Horse Unit (900 acres) and maintain Briggs Coulee (1,800 acres) as a control site • ROW avoidance • Manage as VRM Class IV • Prohibit disposal of forest products unless necessary for stand preservation • OHV travel limited to designated routes yearlong • Limit mechanized travel to designated routes, except for game retrieval • NSO for fluid mineral leasing • Open to mineral materials and non-energy mineral leasing (subject to underlying	**Action:** Manage 2,700 acres as the Acid Shale-Pine Forest ACEC to protect an endemic plant community unique to the area that has developed because of unique Volberg soils. Allow research to determine the effects of grazing, fire, etc. on this type of plant community. Management actions are as follows: • Allow research at War Horse Unit (900 acres) and maintain Briggs Coulee (1,800 acres) as a control site • ROW avoidance • Prohibit disposal of forest products unless necessary for stand preservation • OHV travel limited to designated routes yearlong • Closed to fluid mineral leasing • During travel planning, limit route density to existing main stem routes. Extraneous spurs, problematic braided, or duplicative routes would be considered for closure during site-specific travel planning.

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
	• Intensive wildfire suppression		prescriptions for Greater Sage-Grouse Management) • During travel planning, limit route density to existing main stem routes. Extraneous spurs, problematic braided, or duplicative routes would be considered for closure during site-specific travel planning. • Prohibit commercial timber sales unless necessary for stand preservation	
Action: ACEC status would be considered for both fire management actions and in site-specific implementation assessments for hazardous fuels reduction projects. The Acid Shale-Pine Forest ACEC is a Fire Management Category B in the Grass/Rangelands Fire Management Zone (BLM 2003b).	**Action:** The Acid Shale-Pine Forest ACEC is a Fire Management Category B in the Prairie Forests FMU.	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** Same as Alternative B	**Action:** Same as Alternative B

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Blacktail Creek ACEC				
Action: No similar action	**Action:** Manage 1,200 acres as the Blacktail Creek ACEC for the protection of rare paleontological resources. Management actions are as follows: • NSO for fluid minerals • Recommend continuing withdrawal to protect the paleontological resources from mineral development (withdrawn from locatable mineral entry and closed to mineral material disposal) • Close to nonenergy solid mineral leasing • ROW exclusion area	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action (the ACEC would not be designated under this alternative).	
Blind Horse, Chute Mountain, Deep Creek/Battle Creek, and Ear Mountain ACECs/ONAs				
Action: Manage the following areas as ONAs to protect wildlife habitat, scenery, and other surface resource values from disturbance: • Blind Horse (4,900 acres) • Chute Mountain (3,200 acres) • Deep Creek/Battle Creek (3,100 acres) • Ear Mountain (1,800 acres)	**Action:** Manage the following areas as ACECs to protect wildlife habitat, scenery, and geologic features from disturbance: • Blind Horse (4,900 acres) • Chute Mountain (3,200 acres) • Deep Creek/Battle Creek (3,100 acres) • Ear Mountain (1,800 acres)	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action. Blind Horse, Chute Mountain, Deep Creek/Battle Creek, and Ear Mountain would not be designated as ACECs.	**Action:** Same as Alternative B
Action: No similar action	**Action:** Recommend for designation as ONAs		**Action:** No similar action (the ACECs would not be designated under this alternative).	**Action:** No similar action

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Action: Management actions for the Blind Horse, Chute Mountain, Deep Creek/Battle Creek, and Ear Mountain ACECs/ONAs are as follows: • Pursue legal access through acquisition • Close to fluid mineral leasing • Close to mineral material disposal • Withdraw from locatable mineral entry (Public Law 109-432 Sect. 403a) • Continue management prescriptions outlined in the Rocky Mountain Front ONA Activity Plan/Environmental Assessment (BLM 1989) where not further amended	**Action:** Same as Alternative A	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action (the ACECs would not be designated under this alternative).	**Action:** Same as Alternative A
Action: Manage as VRM Class I		**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action (the ACECs would not be designated under this alternative).	**Action:** Same as Alternative A
Action: Close to OHV travel	**Action:** Close to motorized travel		**Action:** No similar action (the ACECs would not be designated under this alternative).	**Action:** Same as Alternative A

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Action: • Exclusion area for communication site ROWs • Avoidance area for utility and transportation corridors	**Action:** Exclusion area for all ROWs	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action (the ACECs would not be designated under this alternative).	**Action:** Same as Alternative A
	Action: No similar action	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action	**Action:** Management actions for the Blind Horse, Chute Mountain, Deep Creek/Battle Creek, and Ear Mountain ACECs/ONAs are as follows: • Permit new range improvement projects to support land health objectives only if it can be shown that they would protect or enhance relevant or important values • Allow maintenance of existing range improvement facilities in a manner consistent with the long-term preservation of relevant or important values • Close to commercial wood product sales or harvest

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Action: Blind Horse, Chute Mountain, Deep Creek/Battle Creek, and Ear Mountain ONAs are Fire Management Category C in the Front FMU (BLM 2003b).	**Action:** Blind Horse, Chute Mountain, Deep Creek/Battle Creek, and Ear Mountain ACECs are Fire Management Category C in the Front FMU.	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action (the ACECs would not be designated under this alternative).	**Action:** Same as Alternative B
Collar Gulch ACEC				
Action: Manage 1,500 acres as the Collar Gulch ACEC to protect a pure strain of westslope cutthroat trout, a Montana Fish, Wildlife, and Parks state species of special concern. Management actions are as follows: • Emphasize wildlife habitat protection and improvement for the westslope cutthroat trout population, with some nonmotorized recreational use • In order to protect natural resource values, do not pursue additional public access to the area • Design developments to protect trout habitat • Initiate stream protection and enhancement structures to improve trout habitat	**Action:** Manage 2,700 acres, which include the BLM-administered portions of the Collar Gulch and Chicago Gulch watersheds, as an ACEC to protect a pure strain of westslope cutthroat trout, an MFWP state species of special concern, and the Tate-Poetter Cave, a significant cave and Townsend's big-eared bat winter hibernacula. Chicago Gulch is a possible reintroduction site for the Collar Gulch population. Management actions are as follows: • Propose withdrawal from locatable mineral entry • Close to mineral material disposal • Close to fluid mineral leasing • Close to nonenergy solid mineral leasing • ROW exclusion area • Close to commercial timber harvest	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action (the Collar Gulch ACEC would not be designated under this alternative).	**Action:** Manage 2,700 acres, which include the BLM-administered portions of the Collar Gulch and Chicago Gulch watersheds, as an ACEC to protect a pure strain of westslope cutthroat trout, an MFWP state species of special concern, and the Tate-Poetter Cave, a significant cave and Townsend's big-eared bat winter hibernacula. Chicago Gulch is a possible reintroduction site for the Collar Gulch population. Management actions are as follows: • Management activities would emphasize wildlife habitat protection and improvement for the westslope cutthroat trout population and future habitats, with some nonmotorized recreational use • Close to mineral material disposal

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
				• Close to nonenergy solid mineral leasing • Propose withdrawal from locatable mineral entry • All developments and projects would be designed to protect and enhance aquatic habitat, including timber harvest
Action: Restrict withdrawal of surface or groundwater when the flow in Collar Gulch Creek drops below 3 cubic feet per second, measured at the point where the creek enters private land in T. 17 N., R. 20 E., Section 32: SE1/4NW1/4	**Action:** Do not authorize ROWs for withdrawal of surface or groundwater from BLM-administered lands in the Collar Gulch and Chicago Gulch watersheds.	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action (the Collar Gulch ACEC would not be designated under this alternative).	**Action:** Same as Alternative B
Action: Emphasize concurrent reclamation, thereby reducing erosion and sedimentation potential	**Action:** New roads for forest management activities would not be allowed.	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action (the Collar Gulch ACEC would not be designated under this alternative).	**Action:** No new permanent roads for forest management activities would be allowed. New bedrock-disturbing roads would not be allowed on the pyrite-rich porphyry termed the "Red Mountain-Judith Peak Complex" (Williams et al. 2015).

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
	Action: No similar action	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action	**Action:** Timber management actions to improve forest health and enhance aquatic habitat within the watersheds would be designed to minimize increases in water quantity availability, which could indirectly increase the volume of low pH water in the streams.
	Action: Design surface-disturbing activities to minimize impacts on the Collar Peak Trail and to avoid impact on the Tate-Poetter Cave resources	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** Design surface-disturbing activities to minimize impacts on the Collar Peak Trail and to avoid impact on the Tate-Poetter Cave resources	**Action:** Design surface-disturbing activities to minimize impacts on the Collar Peak Trail and to avoid impact on the Tate-Poetter Cave resources
Action: The Collar Gulch ACEC is a Fire Management Category B in the Island Ranges FMU (BLM 2003b).	**Action:** The Collar Gulch ACEC is a Fire Management Category C in the Island Ranges FMU.	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action (the Collar Gulch ACEC would not be designated under this alternative).	**Action:** Same as Alternative B

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Judith Mountains Scenic ACEC				
Action: Manage 3,800 acres as the Judith Mountains Scenic ACEC to protect scenic, wildlife, and recreational values in the Judith Mountains. Management actions are as follows: • Limit OHV travel to designated routes yearlong • Mitigate impacts from surface-disturbing activities • ROW avoidance area • Restrict management of forest products • Manage as VRM Class II	**Action:** Manage 4,800 acres as the Judith Mountains Scenic ACEC to protect scenic and significant cave values in the Judith Mountains. Management actions are as follows: • Close to mineral material disposal • Close to fluid mineral leasing • Close to nonenergy solid mineral leasing • ROW exclusion area • Limit OHV travel to designated routes yearlong • Mitigate impacts from surface-disturbing activities • Manage as VRM Class II • Manage for significant cave resources, in consultation with Department of Natural Resources and Conservation	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action (the Judith Mountains Scenic ACEC would not be designated under this alternative).	**Action:** Same as Alternative C
Action: ACEC status would be considered for both fire management actions and in site-specific implementation assessments for hazardous fuels reduction projects. The Judith Mountains Scenic ACEC is a Fire Management Category B in the Island Ranges FMU (BLM 2003b).	**Action:** The Judith Mountains Scenic ACEC is a Fire Management Category C in the Island Ranges FMU.	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action (the Judith Mountains Scenic ACEC would not be designated under this alternative).	

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Square Butte ACEC				
Action: Manage 1,900 acres as the Square Butte ACEC/ONA to protect natural endemic systems, cultural sites, scenic qualities, and rare geologic features unique to Montana, and to identify key wildlife viewing sites under the watchable wildlife program. Management actions are as follows: • Segregate from the mining and leasing laws by a classification under the authority of the Classification and Multiple-Use Act of 1964. Pursue a protective withdrawal for Square Butte to segregate this area from mining claim location to protect natural endemic systems, cultural sites, scenic qualities, and rare geologic features unique to Montana. The classification would be terminated when the area is withdrawn. • Pursue legal access to the ACEC for a trailhead and a trail network to the butte • ROW exclusion area	**Action:** Manage 2,700 acres as the Square Butte ACEC to protect cultural sites, scenic qualities, rare geologic features unique to Montana, and wildlife. Management actions are as follows: • Same as Alternative A, plus: o Recommend for designation as an ONA o Manage as VRM Class I o Allow wildfire	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** Manage 900 acres as the Square Butte ACEC to protect cultural sites, scenic qualities, rare geologic features unique to Montana, and wildlife. Management actions are as follows: • Same as Alternative A, plus: o Manage as VRM Class II o Closed to OSV travel o Mechanized travel limited to designated routes, except for game retrieval o NSO for fluid mineral leasing o Closed to mineral materials leasing o Closed to non-energy mineral leasing o Allow wildfire and prescribed fire	**Action:** Manage 2,700 acres as the Square Butte ACEC to protect cultural sites, scenic qualities, rare geologic features unique to Montana, and wildlife. Management actions are as follows: • Same as Alternative A, plus: o Manage as VRM Class II o Allow wildfire and prescribed fire

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
• Recreation and habitat direction for the area would include a trail system, camping areas, a recreation use policy, and habitat management direction for wildlife populations including prescribed fire and security areas. • Prohibit surface disturbing activities and commercial timber sales unless necessary for stand preservation				
Action: Manage the Square Butte ACEC as closed to motorized travel.	**Action:** Manage the Square Butte ACEC as limited to designated routes yearlong for OHV travel. Limit mechanized travel to designated routes, except for game retrieval.	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** Manage the Square Butte ACEC as limited to designated routes yearlong for OHV travel. Limit mechanized travel to designated routes, except for game retrieval.	**Action:** Manage the Square Butte ACEC as limited to designated routes yearlong for OHV travel. Limit mechanized travel to designated routes, except for game retrieval.
Action: The Square Butte ACEC is a Fire Management Category B in the Prairie Forests FMU (BLM 2003b).	**Action:** The Square Butte ACEC is a Fire Management Category C in the Prairie Forests FMU. Although the Prairie Forests FMU is a Fire Management Category B, this individual ACEC would be managed as a Category C.	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** The Square Butte ACEC is a Fire Management Category C in the Prairie Forests FMU. Although the Prairie Forests FMU is a Fire Management Category B, this individual ACEC would be managed as a Category C.	**Action:** The Square Butte ACEC is a Fire Management Category C in the Prairie Forests FMU. Although the Prairie Forests FMU is a Fire Management Category B, this individual ACEC would be managed as a Category C.
Action: No similar action	**Action:** Manage the Square Butte ACEC as an avoidance area for fire retardant use to protect visual resources.	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** Manage the Square Butte ACEC as an avoidance area for fire retardant use to protect visual resources.	**Action:** Manage the Square Butte ACEC as an avoidance area for fire retardant use to protect visual resources.

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Sun River ACEC				
Action: No similar action	**Action:** Establish 4,900 acres as the Sun River ACEC for the protection of scenic qualities, rare paleontological resources, and cultural resources. Management actions are as follows: • ROW avoidance area • Manage 3,000 acres as VRM Class II • Manage 1,900 acres as VRM Class III • Close to fluid mineral leasing • Close to nonenergy solid mineral leasing • Close to casual collection of invertebrate and plant fossils • Withdraw from locatable mineral entry (Public Law 149-132 Sect. 403)	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action (the Sun River ACEC would not be designated under this alternative).	**Action:** Same as Alternative B, except: • Manage as VRM Class II
Action: No similar action	**Action:** The Sun River ACEC is a Fire Management Category C in the Front FMU.	**Action:** No similar action (no ACECs would be designated under this alternative).	**Action:** No similar action (the Sun River ACEC would not be designated under this alternative).	**Action:** Same as Alternative B

U.7 CONSERVATION MANAGEMENT AREAS

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Rocky Mountain Front CMA				
• VRM Class I • Withdrawn from fluid mineral leasing • Withdrawn from non-energy solid leasing • Withdrawn from locatable mineral entry • Closed to mineral materials leasing • Closed to OHV travel • Open to OSV travel • Open to mechanized travel • ROW Exclusion • Commercial timber sales prohibited	Same as Alternative A.	[Not included in this alternative]	Same as Alternative A, plus: • Closed to OSV travel • Mechanized travel limited to designated routes, except for game retrieval	Same as Alternative A.

U.8 FORESTRY

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Action: Public land within set aside areas would not be available for the harvest of forest products (18,400 acres*). • Conservation Management Areas (CMAs) • ACECs/ONAs: o Acid Shale-Pine Forest o Square Butte o WSAs **1,200 acres are within montane forests and meadows and have commercial timber resources.*	**Action:** Manage 211,700 acres* as closed to forest product sales and/or harvest. Additional areas may be found as unsuitable for harvest on a case-by-case basis to meet desired resource conditions. • Same as Alternative A, plus: o Lands managed to protect wilderness characteristics o VRM Class I areas o Collar Gulch ACEC o All suitable WSR segments classified as "wild" **13,800 acres are within montane forests and meadows and have commercial timber resources.*	**Action:** Manage 2,700 acres* as closed to forest product sales. Additional areas may be found as unsuitable for harvest on a case-by-case basis to meet desired resource conditions. • Square Butte ACEC • WSAs Exception: Provide opportunities for small sales of forest products to the public on a case-by-case basis (5450- permit). Small sales would only occur where sufficient physical access currently exists. No new permanent roads would be constructed to meet the demands of the small sale program. **1,500 acres are within montane forests and meadows and have commercial timber resources.*	**Action:** Manage 18,400 acres* as closed to forest product sales. Additional areas may be found as unsuitable for harvest on a case-by-case basis to meet desired resource conditions. • Same as Alternative A Exception: Provide opportunities for small sales of forest products to the public on a case-by-case basis (5450- permit). Small sales would only occur where sufficient physical access currently exists. No new permanent roads would be constructed to meet the demands of the small sale program. **1,500 acres are within montane forests and meadows and have commercial timber resources.*	**Action:** Manage 119,600 acres* as closed to forest product sales and/or harvest. Additional areas may be found as unsuitable for harvest on a case-by-case basis to meet desired resource conditions. • Same as Alternative A, plus: o Lands managed to protect wilderness characteristics o VRM Class I areas Exception: Provide opportunities for small sales of forest products to the public on a case-by-case basis (5450-permit). Small sales would only occur where sufficient physical access currently exists. No new permanent roads would be constructed to meet the demands of the small sale program. **10,300 acres are within montane forests and meadows and have commercial timber resources.*

U.9 Renewable Energy

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Allowable Use: Manage 249,400 acres as exclusion areas for wind energy: • Greater sage-grouse PHMA • NSTs and NHTs • Conservation Management Areas (CMAs)	**Allowable Use:** Manage 477,900 acres as exclusion areas for wind energy: • Greater sage-grouse PHMA • NRHP-eligible and -listed historical properties and cultural sites allocated to conservation for future use, traditional use, and public use • Lands managed to protect wilderness characteristics • BCAs o Arrow Creek BCA o Cemetery Road BCA o Crooked Creek BCA o Judith Mountains BCA • ACECs: o Acid Shale-Pine Forest o Blacktail Creek o Blind Horse o Chute Mountain o Collar Gulch o Deep Creek/Battle Creek o Ear Mountain o Judith Mountains Scenic o Square Butte • WSR-suitable segments classified as Wild • WSAs • NSTs and NHTs • Crucial summer and winter range for ungulates	**Allowable Use:** Manage 263,300 acres as exclusion areas for wind energy: • Greater sage-grouse PHMA • WSAs • NSTs and NHTs • Rocky Mountain Front Conservation Management Area	**Allowable Use:** Manage 264,200 acres as exclusion areas for wind energy: • Greater sage-grouse PHMA • WSAs • NSTs and NHTs • Conservation Management Areas (CMAs)	**Allowable Use:** Manage 387,200 acres as exclusion areas for wind energy: • Greater sage-grouse PHMA • NRHP-listed historical properties • Lands managed to protect wilderness characteristics • ACECs: o Blind Horse o Chute Mountain o Deep Creek/Battle Creek o Ear Mountain o Square Butte • WSAs • NSTs and NHTs • SRMAs • Conservation Management Areas (CMAs)

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
	• Conservation Management Areas (CMAs) • Bald and golden eagle seasonal roosting, nesting, and foraging habitat			
Allowable Use: Manage 117,500 acres as avoidance areas for wind energy.	**Allowable Use:** Manage 118,600 acres as avoidance areas for wind energy.	**Allowable Use:** Manage 269,200 acres as avoidance areas for wind energy.	**Allowable Use:** Manage 204,600 acres as avoidance areas for wind energy.	**Allowable Use:** Manage 110,900 acres as avoidance areas for wind energy.

U.10 EXTENSIVE RECREATION MANAGEMENT AREA

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Judith Reservoirs ERMA				
• Manage 11 undeveloped recreation sites associated with these fishing reservoirs: o Buffalo Wallow o Holland o Jakes o Crooked Creek o Dry Blood o South Fork Dry Blood o Drag o Payola o Fritzner o Mauland o Box Elder/Vogel • Open to Coal and Nonenergy Solids • Open to mineral materials leasing	No similar action (Judith Reservoirs is not an ERMA under this alternative).	Manage 10 undeveloped recreation sites associated with these fishing reservoirs: • Drag • Dry Blood • Fritzner • Holland • Payola • South Fork Dry Blood • Bubs • Whisker • Manage as VRM Class III (450 acres). • Manage as VRM Class IV (550 acres). • Open to mineral materials leasing • Open to fluid leasables and non-energy leasables • Designate travel as limited to designated routes. • Vegetative treatments allowed	Manage 8 undeveloped recreation sites associated with these fishing reservoirs: • Drag • Dry Blood • Fritzner • Holland • Payola • South Fork Dry Blood • Bubs • Whisker • Manage as VRM Class III (450 acres). • Manage as VRM Class IV (550 acres). • Open to mineral materials leasing • Open to fluid leasables and non-energy leasables • Designate travel as limited to designated routes. • Vegetative treatments allowed	Manage 8 undeveloped recreation sites associated with these fishing reservoirs: • Drag • Dry Blood • Fritzner • Holland • Payola • South Fork Dry Blood • Bubs • Whisker • Open to Coal and Nonenergy Solids • Open to mineral materials leasing • Manage as VRM Class II (100 acres). • Manage as VRM Class III (300 acres). • Manage as VRM Class IV (400 acres). • Designate travel as limited to designated routes. • Forest management activities may be undertaken to accomplish resource objectives.

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
North Moccasin ERMA				
No similar action (North Moccasin is not an ERMA under this alternative).	No similar action (North Moccasin is not an ERMA under this alternative).	No similar action (North Moccasin is not an ERMA under this alternative).	No similar action (North Moccasin is not an ERMA under this alternative).	• Open to coal and nonenergy Solids • Open to mineral materials leasing • Open to locatable minerals • Manage as VRM Class IV • Designate travel as limited to designated routes. • Forest management activities may be undertaken to accomplish resource objectives.

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Snowy Mountain ERMA				
• No similar action (Snowy Mountain is not an ERMA under this alternative).	No similar action (Snowy Mountain is not an ERMA under this alternative).	• No similar action (Snowy Mountain is not an ERMA under this alternative).	• No similar action (Snowy Mountain is not an ERMA under this alternative).	• Open to coal and nonenergy Solids • Open to locatable minerals • Open to mineral materials leasing • Manage as VRM Class II (390 acres). • Manage as VRM Class IV (80 acres). • Forest management activities may be undertaken to accomplish resource objectives.

U.11 EXTENSIVE RECREATION MANAGEMENT AREA/BACKCOUNTRY CONSERVATION AREA

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Crooked Creek and Arrow Creek BCAs				
No similar action (no BCA designated).	• Manage as VRM Class II. • No surface occupancy (NSO) or use is allowed within the boundary of the BCA (*fluid minerals only*). • Closed to solid leasable minerals. • Open to mineral materials leasing • Designate travel as limited to designated routes. • ROW exclusion (locate ROWs outside the boundaries of the ERMA). • Allow for forest management activities	• ROW Avoidance (renewables)	• Manage as VRM Class II. • Manage as CSU for fluid mineral leasing • Open to non-energy leasables (subject to underlying prescriptions for Greater Sage-Grouse management) • Open to mineral materials leasing (subject to underlying prescriptions for Greater Sage-Grouse management) • Limited motorized travel • Limit mechanized travel to designated routes, except for game retrieval • ROW Avoidance • Allow for forest management activities • OSV limited to designated routes	No similar action (no BCA designated).

U.12 SPECIAL RECREATION MANAGEMENT AREAS

Alternative A (No Action)	Alternative B	Alternative C1 (Preferred Alternative)	Alternative C2 (Proposed Alternative)	Alternative D
Judith SRMA (Including Collar Gulch)				
Available for restricted management of forest products.	No similar action (Judith is not an SRMA under this alternative).	• Manage as VRM Class III • Open to fluid leasable and non-energy leasables • Open to mineral materials leasing • Limited • Allow for forest management activities	• Manage as VRM Class III • Open to fluid leasable and non-energy leasables • Open to mineral materials leasing • Limited • Allow for forest management activities	• Manage as VRM Class III. • Allow for forest management activities
Snowy Mountains SRMA				
Open to mineral materials leasing	No similar action (Snowy Mountains is not an SRMA under this alternative).	• Manage as VRM Class III/IV • Open to fluid leasables and non-energy leasables • Open to mineral materials leasing • Limited motorized travel	• Manage as VRM Class III/IV • Open to fluid leasables and non-energy leasables • Open to mineral materials leasing • Limited motorized travel	No similar action (Snowy Mountains is not an SRMA under this alternative).
North Moccasins SRMA				
No similar action (*North Moccasin is not an RMA under this alternative*).	No similar action (North Moccasin is not an RMA under this alternative).	• Manage as VRM Class IV • Open to fluid leasables and non-energy leasables • Open to mineral materials leasing • Limited motorized travel • Vegetative Treatments Allowed	• Manage as VRM Class IV • Open to fluid leasables and non-energy leasables • Open to mineral materials leasing • Limited motorized travel • Vegetative Treatments Allowed	No similar action (North Moccasin is not an RMA under this alternative).
Lowry Bridge SRMA				
No similar action (*Lowry Bridge is not an RMA under this alternative*).	No similar action (*Lowry Bridge is not an RMA under this alternative*).	• Manage as VRM Class II • Open to fluid leasables and non-energy leasables • Open to mineral materials leasing • Limited motorized travel	• Manage as VRM Class IV • Open to fluid leasables and non-energy leasables • Open to mineral materials leasing • Limited motorized travel	• Manage as VRM Class III. • No similar action. • Open • No similar action.

Appendix V

Draft Wild and Scenic River Report

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DRAFT
Wild and Scenic River Report
Lewistown Field Office, Montana

January 2015

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TABLE OF CONTENTS

Chapter Page

1. **INTRODUCTION 1-1**
   - 1.1 Project Area 1-1
   - 1.2 Why Conduct a WSR Study and Why Now? 1-1
   - 1.3 What is a Wild and Scenic River? 1-2
   - 1.4 Steps in the Wild and Scenic River Study Process 1-3
     - 1.4.1 Eligibility Inventory 1-3
     - 1.4.2 Classification Inventory 1-6
     - 1.4.3 Suitability Phase 1-6
2. **METHODOLOGY 2-1**
   - 2.1 Methods Used to Identify River and Stream Segments 2-1
     - 2.1.1 Geographic Information Systems 2-1
     - 2.1.2 BLM Resource Interdisciplinary Team 2-1
     - 2.1.3 Informational Sources 2-7
     - 2.1.4 Other Agencies 2-7
   - 2.2 Eligibility Criteria 2-8
     - 2.2.1 Free-Flowing Criteria 2-8
     - 2.2.2 Outstandingly Remarkable Values Criteria and Region of Comparison 2-9
     - 2.2.3 Classification Criteria 2-12
   - 2.3 Suitability Criteria 2-14
3. **ELIGIBILITY EVALUATION 3-1**
   - 3.1 Armells Creek 3-6
   - 3.2 Collar Gulch Creek 3-8
   - 3.3 Fords Creek 3-11
   - 3.4 Judith River 3-13
   - 3.5 North Fork Flatwillow Creek 3-16
   - 3.6 Pike Creek 3-18
   - 3.7 Sacagawea River (also known as Crooked Creek) 3-21
   - 3.8 South Fork Flatwillow Creek 3-24
4. **SUITABILITY EVALUATION 4-1**
   - 4.1 Armells Creek 4-4
     - 4.1.1 Suitability Criteria 4-4
     - 4.1.2 Preliminary Suitability Determination 4-6
   - 4.2 Blindhorse Creek, Frenchy Gulch, North Fork Blindhorse Creek, Pamburn Creek, Rinker Creek, and South Fork Blindhorse Creek 4-6
     - 4.2.1 Suitability Criteria 4-7
     - 4.2.2 Preliminary Suitability Determinations 4-10
   - 4.3 Collar Gulch Creek 4-10
     - 4.3.1 Suitability Criteria 4-10
     - 4.3.2 Preliminary Suitability Determination 4-12
   - 4.4 Cutrock Creek 4-12
     - 4.4.1 Suitability Criteria 4-12
     - 4.4.2 Preliminary Suitability Determination 4-14

TABLE OF CONTENTS (*continued*)

Chapter Page

4.5 Edwards Creek, North Fork Deep Creek 4-15
  4.5.1 Suitability Criteria 4-15
  4.5.2 Preliminary Suitability Determinations 4-17
4.6 Fords Creek 4-17
  4.6.1 Suitability Criteria 4-17
  4.6.2 Preliminary Suitability Determination 4-19
4.7 Judith River 4-20
  4.7.1 Suitability Criteria 4-20
  4.7.2 Preliminary Suitability Determination 4-22
4.8 Middle Fork Dearborn River 4-22
  4.8.1 Suitability Criteria 4-22
  4.8.2 Preliminary Suitability Determination 4-25
4.9 Missouri River 4-25
  4.9.1 Suitability Criteria 4-25
  4.9.2 Preliminary Suitability Determination 4-27
4.10 North Fork Flatwillow Creek, South Fork Flatwillow Creek 4-27
  4.10.1 Suitability Criteria 4-27
  4.10.2 Preliminary Suitability Determinations 4-29
4.11 North Fork Sheep Creek, North Fork Stickney Creek, South Fork Sheep Creek, South Fork Stickney Creek 4-29
  4.11.1 Suitability Criteria 4-30
  4.11.2 Preliminary Suitability Determinations 4-32
4.12 North Fork Teton River 4-33
  4.12.1 Suitability Criteria 4-33
  4.12.2 Preliminary Suitability Determination 4-36
4.13 Pike Creek 4-36
  4.13.1 Suitability Criteria 4-36
  4.13.2 Preliminary Suitability Determination 4-38
4.14 Sacagawea River (also known as Crooked Creek) 4-38
  4.14.1 Suitability Criteria 4-38
  4.14.2 Preliminary Suitability Determination 4-40
4.15 South Fork Deep Creek 4-41
  4.15.1 Suitability Criteria 4-41
  4.15.2 Preliminary Suitability Determination 4-44
4.16 Sun River Segment 1 4-44
  4.16.1 Suitability Criteria 4-44
  4.16.2 Preliminary Suitability Determination 4-47
4.17 Sun River Segment 2 4-48
  4.17.1 Suitability Criteria 4-48
  4.17.2 Preliminary Suitability Determination 4-50

5. INTERIM MANAGEMENT AND NEXT STEPS 5-1

5.1 Interim Management 5-1
5.2 Next Steps 5-3

6. LIST OF PREPARERS 6-1

7. REFERENCES 7-1

TABLES

Page

2-1 Streams Reviewed for Eligibility 2-2
2-2 Outstandingly Remarkable Values Criteria and Region of Comparison 2-10
2-3 Classification Criteria 2-13
3-1 Stream Segments Determined Eligible for Suitability Study 3-1
5-1 Interim Protection for Candidate Wild and Scenic Rivers 5-2

FIGURES

Page

1-1 Wild and Scenic Rivers Study Process 1-5
3-1 Stream Segments Determined Eligible for Suitability Study 3-3
3-2 Armells Creek 3-7
3-3 Collar Gulch Creek 3-10
3-4 Fords Creek 3-12
3-5 Judith River 3-15
3-6 North Fork Flatwillow Creek 3-17
3-7 Pike Creek 3-20
3-8 Sacagawea River (Crooked Creek) 3-23
3-9 South Fork Flatwillow Creek 3-25

ACRONYMS AND ABBREVIATIONS	Full Phrase
ACEC	area of critical environmental concern
BLM	United States Department of the Interior, Bureau of Land Management
EIS	environmental impact statement
EMPSi	Environmental Management and Planning Solutions, Inc.
Forest Service	United States Department of Agriculture, National Forest Service
LFO	Lewistown Field Office
MFWP	Montana Fish, Wildlife, & Parks
NEPA	National Environmental Policy Act
National System	National Wild and Scenic Rivers System
ORV	outstandingly remarkable value
RMP	resource management plan
US	United States
USFWS	US Department of the Interior, Fish and Wildlife Service
VRM	visual resource management
WSR	wild and scenic river
WSR Act	Wild and Scenic Rivers Act of 1968

CHAPTER 1
INTRODUCTION

The United States (US) Department of the Interior, Bureau of Land Management (BLM), Lewistown Field Office (LFO) has completed a wild and scenic river (WSR) evaluation as part of its resource management plan (RMP) process. During the identification phase, the BLM examined river and stream segments within the LFO boundaries to identify those segments that either pass through or are bordered by BLM-administered lands. Once identified, standard criteria were applied to determine the eligibility of each segment. This report describes the identification process that was followed, the eligibility and classification criteria that were used, and the determinations that were made during the eligibility phase of the WSR evaluation for the LFO. The BLM will be completing the suitability phase for the eligible stream segments as part of the RMP revision process. Each eligible river segment will be evaluated for suitability or nonsuitability to assess whether or not it is a potential candidate for inclusion in the National Wild and Scenic Rivers System (National System).

1.1 PROJECT AREA

The land area to be covered under the Lewistown RMP is in the central part of Montana in Cascade, Chouteau, Fergus, Judith Basin, Meagher, Petroleum, Pondera, and Teton Counties and in the northern portion of Lewis and Clark County. The Lewistown RMP decision area comprises approximately 655,300 acres of BLM-managed lands in a 12,906,800-acre planning area.

1.2 WHY CONDUCT A WSR STUDY AND WHY NOW?

Section 5(d)(1) of the Wild and Scenic Rivers Act of 1968 (WSR Act; Public Law 90-542; 16 US Code 1271-1287) directs federal agencies to consider potential WSRs in their land and water planning processes ("In all planning for the use and development of water and related land resources, consideration shall be given by all federal agencies involved to potential national wild, scenic, and recreational river areas"). To fulfill this requirement, whenever the BLM undertakes land use planning (for example, an RMP), it analyzes river and stream segments that might be eligible for inclusion in the National Wild and Scenic Rivers System (National System).

The LFO is preparing an RMP and associated environmental impact statement (EIS) to guide management of BLM-administered lands (surface lands and federal minerals) in the LFO. The RMP/EIS will be prepared as a dynamic and flexible plan to allow management to reflect the changing needs of the planning area. It will replace the Headwaters RMP, approved in July 1984 (BLM 1984) and the Judith-Valley-Phillips RMP, approved in September 1994, as amended (BLM 1994). The Lewistown RMP will not include lands in the Upper Missouri River Breaks National Monument.

This WSR study is being conducted now because the BLM is required by the WSR Act to assess river and stream segments under its management jurisdiction as part of its RMP process. The formal public comment period as required by the National Environmental Policy Act of 1969 (NEPA; Public Law 91-190) began on February 10, 2014, with the publication of a Notice of Intent in the *Federal Register*, and ended on April 11, 2014.

1.3 WHAT IS A WILD AND SCENIC RIVER?

Congress enacted the WSR Act on October 2, 1968, to address the need for a national system of river protection. As an outgrowth of a national conservation agenda in the 1950s and 1960s, the WSR Act was in response to the dams, diversions, and water resource development projects that occurred on America's rivers between the 1930s and 1960s. The WSR Act stipulated that selected rivers should be preserved in a free-flowing condition and be protected for the benefit and enjoyment of present and future generations. Since 1968, the WSR Act has been amended many times, primarily to designate additional rivers and to authorize the study of other rivers for possible inclusion.

The WSR Act seeks to protect and enhance a river's natural and cultural values and to provide for public use consistent with its free-flowing character, its water quality, and its outstandingly remarkable values (ORVs). Designation affords certain legal protection from development. For instance, new dams cannot be constructed, and federally assisted water resource development projects that might negatively affect the designated river values are not permitted. Where private lands are involved, the federal managing agency works with local governments and owners to develop protective measures.

As of December 2014 (the last designation), the National System protects 12,709 miles of 208 rivers in 40 states and the Commonwealth of Puerto Rico; this is a little more than one-quarter of 1 percent of the nation's rivers (Interagency Wild and Scenic Rivers Coordinating Council 2014).

By comparison, more than 75,000 large dams across the country have modified at least 600,000 miles, or about 17 percent, of US rivers.

1.4 STEPS IN THE WILD AND SCENIC RIVER STUDY PROCESS

The evaluation of a river(s) for possible inclusion in the National System involves a three-step process: (1) determination of eligibility; (2) tentative classification (wild, scenic, or recreational); and (3) determination of suitability. Evaluations were conducted in accordance with BLM Manual 6400, Wild and Scenic Rivers—Policy and Program Direction for Identification, Evaluation, Planning, and Management (BLM 2012) and with The Wild and Scenic River Study Process technical report (Interagency Wild and Scenic Rivers Coordinating Council 1999). An overview of the WSR study process is shown in **Figure 1-1**, Wild and Scenic Rivers Study Process. Excerpts from BLM Manual 6400 are presented below to explain the process.

The entire river system, including the interrelationship between tributaries and the mainstem, and its associated ecosystems should be considered when identifying the beginning and ending points of the study river. At a minimum, a river study area should include the length of the identified river segment and extend 0.25 miles in width from the ordinary high water mark on both sides of the river.

1.4.1 Eligibility Inventory

Each identified river segment shall be inventoried to determine whether it is eligible for inclusion as a component of the National System.

The eligibility of a river for potential inclusion in the National System is determined by applying the following criteria from the WSR Act: the river segment must be free flowing ("existing or flowing in a natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway") and, with its adjacent land area, possess one or more outstandingly remarkable (unique, rare, or exemplary feature that is exceptional at a comparative regional or national scale) values. Criteria for determining outstandingly remarkable values include, but are not limited to:

1. Scenery – The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attractions (must be scenic quality "A" as defined in the BLM's Visual Resource Inventory Handbook).

2. Recreation – Recreational opportunities (including, but not limited to, sightseeing, interpretation, wildlife observation, camping, photography, hiking, fishing, hunting, and boating) within the subject river corridor are, or have the potential to be, popular enough to attract visitors from throughout or beyond the region or are unique or rare within the region.

3. Geology – The river area contains one or more examples of a geologic feature, process, or phenomenon that is unique or rare within the region of comparison.

4. Fish – Fish values include either indigenous fish populations or habitat, or a combination of these river-related conditions: populations (important national or regional producer of indigenous resident and/or anadromous fish species) or habitat (provides exceptionally high-quality habitat for fish species indigenous to the region of comparison).

5. Wildlife – Wildlife values include either terrestrial or aquatic wildlife populations or habitat, or a combination of these conditions: populations (contains nationally or regionally important populations of indigenous wildlife species dependent on the river environment) or habitat (provides exceptionally high-quality habitat for wildlife of national or regional significance and/or may provide unique habitat or a critical link in habitat conditions for federally or state-listed or candidate, threatened, endangered, or BLM sensitive species).

6. Historical – The river, or area within the river corridor, has scientific value or contains a rare or outstanding example of a district, site, building, or structure that is associated with an event, person, or distinctive style.

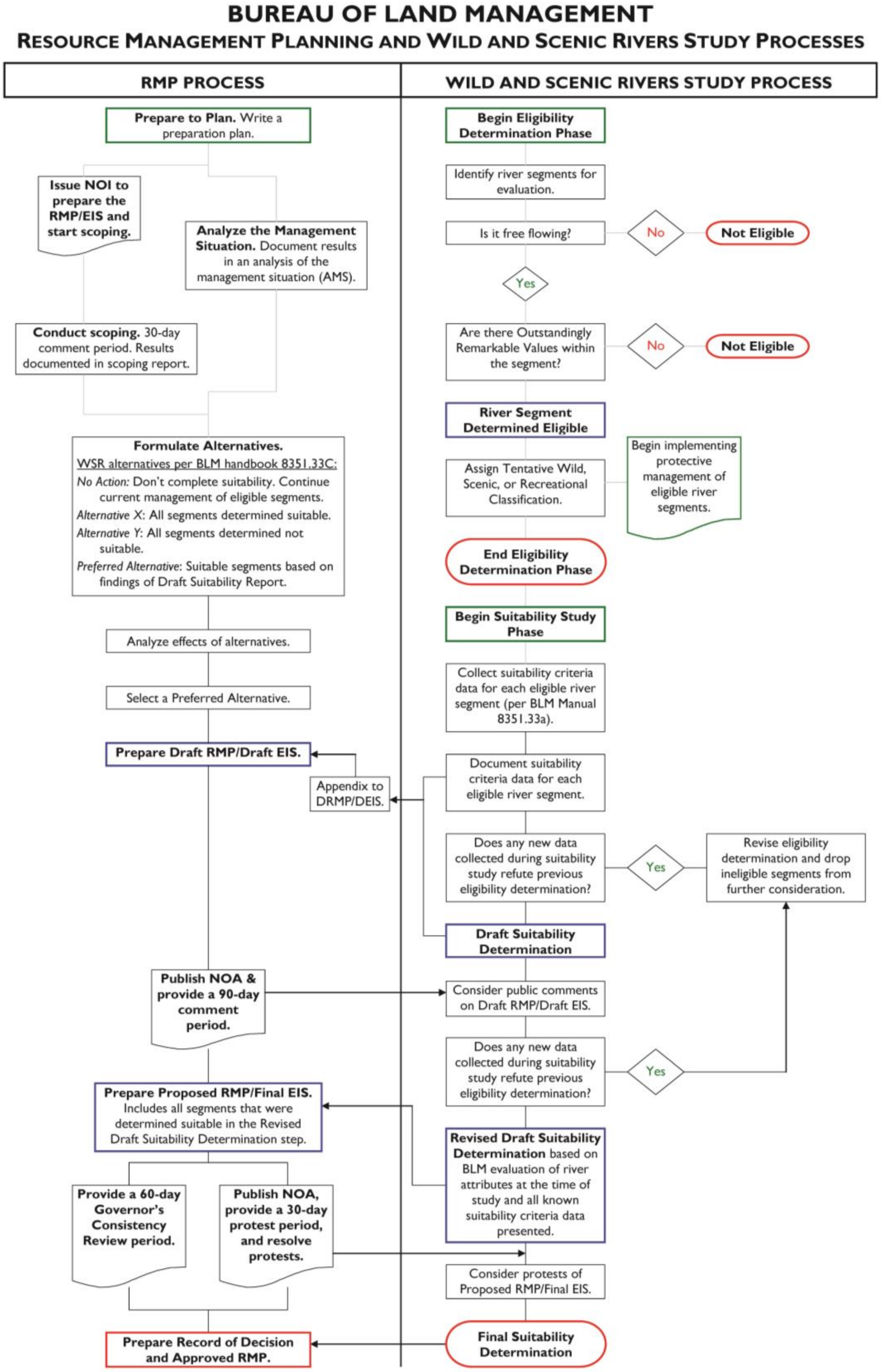
7. Cultural – The river, or area within the river corridor, contains rare or outstanding examples of historic or prehistoric locations of human activity, occupation, or use, including locations of traditional cultural or religious importance to specified social and/or cultural groups.

1. Other Values – While no specific national evaluation guidelines have been developed for these values, category assessments of additional river-related values consistent with the foregoing guidance may be developed as part of the eligibility process including, but not limited to, hydrological and paleontological resources or scientific study opportunities.

It may be necessary to divide a study river into segments to determine eligibility and assign a tentative classification. The following should be considered in defining segment termini: (1) obvious changes in land status or ownership; (2) changes in river condition, such as the presence of dams and reservoirs; (3) significant changes in the types or amounts of development; and (4) the presence of important resource values. If the boundary of the river includes private lands, the BLM should only consider the presence of values on BLM-administered lands and related waters. A river segment should be long enough to enable the protection of the outstandingly remarkable values if the area were managed as a wild, scenic, or recreational river.

Previously, the LFO completed the eligibility phase of the WSR study for segments on BLM-administered lands in Pondera, Teton, Lewis and Clark, Cascade, and Meagher Counties (BLM 2010). These counties generally comprise the western portion of the LFO planning area. Of 78 segments identified and evaluated, 37 were identified for intensive study. Of these, 19 segments were determined eligible for suitability study because they are free flowing and

Figure 1-1
Wild and Scenic Rivers Study Process


BUREAU OF LAND MANAGEMENT
RESOURCE MANAGEMENT PLANNING AND WILD AND SCENIC RIVERS STUDY PROCESSES
RMP PROCESS
WILD AND SCENIC RIVERS STUDY PROCESS
Prepare to Plan. Write a preparation plan.
Issue NOI to prepare the RMP/EIS and start scoping.
Analyze the Management Situation. Document results in an analysis of the management situation (AMS).
Conduct scoping. 30-day comment period. Results documented in scoping report.
Formulate Alternatives.
WSR alternatives per BLM handbook 8351.33C:
No Action: Don't complete suitability. Continue current management of eligible segments.
Alternative X: All segments determined suitable.
Alternative Y: All segments determined not suitable.
Preferred Alternative: Suitable segments based on findings of Draft Suitability Report.
Analyze effects of alternatives.
Select a Preferred Alternative.
Prepare Draft RMP/Draft EIS.
Appendix to DRMP/DEIS.
Publish NOA & provide a 90-day comment period.
Prepare Proposed RMP/Final EIS. Includes all segments that were determined suitable in the Revised Draft Suitability Determination step.
Provide a 60-day Governor's Consistency Review period.
Publish NOA, provide a 30-day protest period, and resolve protests.
Prepare Record of Decision and Approved RMP.
Begin Eligibility Determination Phase
Identify river segments for evaluation.
Is it free flowing?
No
Not Eligible
Yes
Are there Outstandingly Remarkable Values within the segment?
No
Not Eligible
River Segment Determined Eligible
Assign Tentative Wild, Scenic, or Recreational Classification.
Begin implementing protective management of eligible river segments.
End Eligibility Determination Phase
Begin Suitability Study Phase
Collect suitability criteria data for each eligible river segment (per BLM Manual 8351.33a).
Document suitability criteria data for each eligible river segment.
Does any new data collected during suitability study refute previous eligibility determination?
Yes
Revise eligibility determination and drop ineligible segments from further consideration.
Draft Suitability Determination
Consider public comments on Draft RMP/Draft EIS.
Does any new data collected during suitability study refute previous eligibility determination?
Yes
Revised Draft Suitability Determination based on BLM evaluation of river attributes at the time of study and all known suitability criteria data presented.
Consider protests of Proposed RMP/Final EIS.
Final Suitability Determination

possess one or more ORVs (see **Table 3-1**, Stream Segments Determined Eligible for Suitability Study, and **Figure 3-1**, Stream Segments Determined Eligible for Suitability Study).

While developing the Judith-Valley-Phillips RMP, the BLM completed a WSR study for segments on BLM-administered lands in Chouteau, Judith Basin, Fergus, and Petroleum Counties. These counties generally comprise the eastern portion of the LFO planning area. Conditions have changed sufficiently in that portion of the field office to warrant reevaluation. The LFO updated and completed the eligibility phase while developing the Lewistown RMP in 2014. Of 86 segments identified and evaluated, 24 were identified for intensive study. Of these segments, 8 were determined eligible for suitability study. This was because they are free flowing and possess one or more ORVs (see **Table 3-1** and **Figure 3-1**).

1.4.2 Classification Inventory

If the eligibility phase determines segments to be eligible, the BLM assigns a tentative classification and management measures needed to ensure appropriate protection of the values supporting the eligibility and classification determinations based on the condition of the river and the adjacent lands as they exist at the time of the study.

There are three classification categories for eligible rivers: wild, scenic, and recreational. Classes are based on the type and degree of human development and access associated with the river and adjacent lands at the time of the eligibility determination. **Table 2-3**, Classification Criteria, lists the interagency guidelines on these classification categories. The tentative classification assigned during the eligibility phase establishes a guideline for management until either a suitability determination or designation decision is reached. Final classification is a congressional legislative determination, along with designation of a river segment as part of the National System.

1.4.3 Suitability Phase

The purpose of the suitability phase is to determine whether eligible river segments are suitable for inclusion in the National System per the criteria of the WSR Act and BLM Manual 6400. This analysis provides the basis for determining which rivers to recommend to Congress as potential additions to the National System. Suitability considerations include the environment and economic consequences of designation and the manageability of a river if Congress were to designate it.

The suitability evaluation does not result in actual designation, only that a river segment is suitable for designation. The BLM cannot administratively designate a stream via a planning decision or other agency decision into the National System; no segment studied is, or will be, automatically designated as part of the National System. In most cases, only Congress can designate a WSR; however, in some instances, the Secretary of the Interior may designate a WSR. This would happen when the governor of a state, under certain conditions, petitions for a river to be designated.

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CHAPTER 2
METHODOLOGY

This section describes the methodology implemented to identify river and stream segments to be evaluated for eligibility on BLM-administered lands in Chouteau, Judith Basin, Fergus, and Petroleum Counties. The methods used are described in BLM Manual 6400 (BLM 2012).

2.1 METHODS USED TO IDENTIFY RIVER AND STREAM SEGMENTS

All rivers that may have potential for WSR designation were identified and evaluated. Care was taken to avoid overlooking any river segment located on BLM-administered lands. To accomplish this, the BLM relied on several sources, including geographic information systems data, LFO resource specialists, informational sources, other agencies, and public input. The result was a list of 61 individual streams, or stream segments, to be considered for eligibility. **Table 2-1**, Streams Reviewed for Eligibility, presents the results from the identification effort. Shaded rows in the table represent segments determined to be eligible. (Those segments in the western portion of the planning area were analyzed previously but are included in the table.)

2.1.1 Geographic Information Systems

Geographic information systems data compiled by the US Geological Survey, National Wetland Institute, and Montana Natural Heritage Program were used to generate a table of all the perennial stream segments that contain BLM-administered land next to at least one bank of the stream.

2.1.2 BLM Resource Interdisciplinary Team

The BLM interdisciplinary team consisted of resource specialists from the LFO and EMPSi, the BLM's contractor. The team reviewed the initial geographic information systems table to identify all the segments that potentially contained ORVs. These segments were then further evaluated for eligibility. In addition to considering perennial segments, the team also added any non-perennial segments potentially containing ORVs for further consideration.

Table 2-1
Streams Reviewed for Eligibility

River or Creek Name[1]	Portion of Segment Occurring on BLM Lands (Miles)	Free Flowing Determination	Outstandingly Remarkable Values[2]								Notes
			Scenic	Recreational	Geological	Fish	Wildlife	Historic	Cultural	Other	
Western Portion of Planning Area											
Battle Creek	N/A	Y									No ORVs present.
Black Canyon Creek	N/A	Y									No ORVs present.
Birch Creek	N/A	N	X				C				Scenery outstanding; grizzly bear is present but is not river related. Portions of segment rechannelized.
Blind Horse Creek	0.4	Y	X				C				Scenery outstanding; grizzly bear and lynx may be present but are not river related.
Buttolph Creek	N/A	N									Flows into canal.
Cutrock Creek	1.2	Y	X			C	C				Scenery outstanding; grizzly bear and lynx may be present but are not river related; fishery is not remarkable.
Dry Gulch Creek	N/A	Y									No ORVs present.
Eagle Creek	N/A	Y									No ORVs present.
Edwards Creek	1.8	Y	X				C				Scenery outstanding; grizzly bear and lynx may be present but are not river related.
Ford Coulee Creek	N/A	Y									No ORVs present.
Frenchy Gulch Creek	0.8	Y	X				C				Outstanding scenery; grizzly bear, lynx, and wolverine may be present but are not river related.
Green Timber Creek	N/A	Y									No ORVs present.
Indian Creek	N/A	Y									No ORVs present.
Marias River	N/A	Y									No ORVs present.
Middle Fork Dearborn River	1.8	Y	X				C		C		Outstanding scenery; grizzly bear may be present but is not river related. Cultural resources present but are not remarkable.

River or Creek Name[1]	Portion of Segment Occurring on BLM Lands (Miles)	Free Flowing Determination	Outstandingly Remarkable Values[2]								Notes
			Scenic	Recreational	Geological	Fish	Wildlife	Historic	Cultural	Other	
Missouri River	4.7	Y	X	X		C		X			Outstanding scenery and recreation opportunities; fish species are not remarkable. The river is in the Lewis and Clark National Historic Trail corridor.
North Fork Blind Horse Creek	2.3	Y	X				C				Scenery outstanding; grizzly bear and lynx may be present but are not river related.
North Fork Deep Creek	1.6	Y	X				C				Scenery outstanding; grizzly bear and lynx may be present but are not river related.
North Fork Musselshell River	N/A	Y				C					Brook trout present; no ORVs present.
North Fork Smith Creek	N/A	Y									No ORVs present.
North Fork Sheep Creek	1.5	Y	X								Outstanding scenery (Devil's Kitchen).
North Fork Stickney Creek	2.0	Y	X								Outstanding scenery (Devil's Kitchen).
North Fork Teton River	0.3	Y	X	C		X	C				Outstanding scenery. Habitat for westslope cutthroat trout. Grizzly and lynx are present but are not river related. Downstream access limits recreational opportunities.
North Fork Whetstone Creek	N/A	Y					C				No riparian vegetation; no known ORVs. Wildlife may be present but are not river related.
Pamburn Creek	0.5	Y	X				C				Outstanding scenery; grizzly bear and lynx may be present but are not river related.
Park Creek	N/A	Y					C				No ORVs present. Wildlife may be present but are not river related.
Ray Creek	N/A	Y									No ORVs present.
Rinker Creek	0.4	Y	X				C				Outstanding scenery; grizzly bear and lynx may be present but are not river related.

River or Creek Name[1]	Portion of Segment Occurring on BLM Lands (Miles)	Free Flowing Determination	Outstandingly Remarkable Values[2]								Notes
			Scenic	Recreational	Geological	Fish	Wildlife	Historic	Cultural	Other	
South Fork Blind Horse Creek	1.7	Y	X			X	C				Outstanding scenery; genetically pure westslope cutthroat trout, which are an ORV. Grizzly bear and lynx may be present but are not river related.
South Fork Deep Creek	1.8	Y	X			X	C				Outstanding scenery. Grizzly bear and lynx may be present but are not river related.
South Fork Sheep Creek	4.1	Y	X								Outstanding scenery (Devil's Kitchen)
South Fork Stickney Creek	1.2	Y	X			C					Outstanding scenery; stream contains brook and rainbow trout, which are not outstandingly remarkable.
Strawberry Gulch	N/A	Y									No ORVs present.
Sun River Segment 1	1.7	Y	X			X	C		X		Scenery outstanding; fluvial arctic grayling, a sensitive species; grizzly bear and lynx may be present; wintering elk are present but are not river related. Contains areas of cultural importance.
Sun River Segment 2	1.3	Y		X					X		Attracts visitors from outside region; contains areas of cultural importance.
Two Medicine River	N/A	Y									Seriously dewatered; no ORVs present.
Wegner Creek	N/A	Y									No ORVs present.
Eastern Portion of Planning Area											
Antelope Creek	3.0	Y									No ORVs present.
Anthern Creek	0.2	Y									No ORVs present.
Armells Creek Segment 1	1.3	Y	X								Scenery outstanding.
Armells Creek Segment 2	7.2	Y									No ORVs present.
Arrow Creek	2.3	Y	C				C				Good example of Great Plains riparian ecosystem in the region and provides wildlife habitat; however this is not an ORV since it is not river related. Segment is within scenic quality A rating, but this is not directly attributable to the stream.

River or Creek Name[1]	Portion of Segment Occurring on BLM Lands (Miles)	Free Flowing Determination	Outstandingly Remarkable Values[2]								Notes
			Scenic	Recreational	Geological	Fish	Wildlife	Historic	Cultural	Other	
Blood Creek	20.7	Y		C							In a nationally recognized hunting district, but wildlife values are not directly river related.
Box Elder Creek	12.6	Y					C				Grazing-affected Great Plains riparian ecosystem provides diminished wildlife habitat. Wildlife values that do exist are not river related.
Buffalo Creek	4.6	Y									No ORVs present.
Collar Gulch Creek	2.5	Y	X	C		X					Scenery outstanding; easternmost population of genetically pure westslope cutthroat trout. Recreational values do not attract visitors from, or beyond, the region of comparison.
Sacagawea River (aka Crooked Creek)	33.6	Y				X					Contains outstanding example of prairie fisheries.
Dovetail Creek	12.8	Y		C							In a nationally recognized hunting district, but wildlife values are not directly river related.
Drag Creek	13.3	Y		C							In a nationally recognized hunting district, but wildlife values are not directly river related.
Elk Creek	0.8	Y									No ORVs present.
Fords Creek Segment 1	1.3	Y	X								Outstanding scenery.
Fords Creek Segment 2	10.0	Y									No ORVs present.
Judith River	13.9	Y		C	X		C				Outstanding geological resources are varied and visually pleasing. Recreational values do not attract visitors from, or beyond, the region of comparison due to lack of access. Wildlife values that do exist are not river related.
Little Battle Creek	0.7	Y									No ORVs present.
Little Crooked Creek	0.4	Y									No ORVs present.

River or Creek Name[1]	Portion of Segment Occurring on BLM Lands (Miles)	Free Flowing Determination	Outstandingly Remarkable Values[2] Scenic	Recreational	Geological	Fish	Wildlife	Historic	Cultural	Other	Notes
Musselshell River	5.2	Y					C				Good example of Great Plains riparian forest ecosystem in the region and provides wildlife habitat; however, this is not an ORV. Wildlife values that do exist are not river related.
North Fork Flatwillow Creek	0.3	Y	X								Outstanding scenery.
Pike Creek	11.2	Y				X					Northern redbelly x finescale dace hybrid population is an ORV.
South Fork Flatwillow Creek	1.1	Y	X								Outstanding scenery.
Surenough Creek	1.0	Y									No ORVs present.

Source: BLM 2010; BLM GIS 2014; Montana NHD GIS 2014; National Wetland Inventory and Montana Natural Heritage Program GIS 2013

[1] Shading = Segment was determined to be eligible.

[2] X = Value determined to meet ORV criteria; C = Considered but value was determined not to meet ORV criteria.

2.1.3 Informational Sources

The BLM used a number of informational sources and publications to identify potential river and stream segments, as follows:

- Geographic information systems data for perennial streams (BLM GIS 2014; National Wetland Inventory and Montana Natural Heritage Program GIS 2013; Montana NHD GIS 2014)
- Nationwide Rivers Inventory List (NPS 2009)
- Published guidebooks, regional guides, and inventories (e.g., American Whitewater Affiliation List)
- River segments identified in the Statewide Comprehensive Outdoor Recreation Plan (Montana Fish, Wildlife & Parks [MFWP] 2008)
- River segments officially identified by state or local government agencies as being in the public interest for river protection
- River segments identified in public scoping during the RMP process
- BLM floatable rivers database (River Management Society 2014)

2.1.4 Other Agencies

Additional information was gathered from other federal and state agencies using scoping letters, existing documents, and applicable rivers lists on the Internet. The following other sources were used to identify potentially eligible rivers:

- The HiLine Draft RMP/EIS planning area is contiguous with the northern LFO planning area boundary. The HiLine planning area is managed by three BLM field offices located in Havre, Malta, and Glasgow, and the Division of Oil and Gas in Great Falls. These offices have completed a draft RMP and associated EIS, and, as part of the process, they have completed draft WSR eligibility and suitability studies. None of the streams determined eligible for inclusion in the National System are contiguous with the LFO planning area.
- The Miles City Field Office planning area is contiguous with the eastern LFO planning area boundary. This field office has completed a draft RMP and associated EIS. As part of the process, no rivers or river segments were determined to be eligible for inclusion in the National System.
- The Billings Field Office planning area is contiguous with the southern LFO planning area boundary. This field office has completed a draft RMP and associated EIS to guide management of public lands in the planning area and Pompeys Pillar National Monument. As part of the process they have completed a draft WSR eligibility study. No rivers or river segments determined to be

eligible for inclusion in the National System are contiguous with the LFO planning area.

- The Upper Missouri River Breaks National Monument covers about 375,000 acres and portions of four counties in the LFO planning area boundary. The National Monument includes the Upper Missouri National Wild and Scenic River. Management of the WSR is guided by the 2008 Proposed RMP/Final EIS (BLM 2008). The Upper Missouri River Breaks National Monument is not included in this assessment. There are no WSR segments in the Upper Missouri River Breaks National Monument that are contiguous with segments in this study.

2.2 ELIGIBILITY CRITERIA

Each identified river segment in the field offices' planning areas must be evaluated to determine whether it is eligible for inclusion in the National System. To be eligible, a river segment must be free flowing and must possess at least one ORV. These criteria are described below.

2.2.1 Free-Flowing Criteria

The LFO applied the definition of free flowing described in the WSR Act and BLM guidance. They used this definition to make a determination of free flowing for each of the segments containing at least one ORV.

Free flowing is defined by Section 16(b) of the WSR Act as "existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway." The existence of small dams, diversion works, or other minor structures in the river segment should not automatically disqualify it for consideration as a potential addition to the National System.

Congress requires rivers to be "naturally flowing"; in other words, flowing without any upstream manipulation except by nature. A river in the study reach would not be rendered ineligible by impoundments above or below the segment (including those that may regulate the flow regime through the segment), existing minor dams, and diversion structures. There are many segments in the National System that are downstream from major dams or between dams.

Additionally, a river need not be "boatable or floatable" in order to be eligible. For purposes of eligibility determination, flow volume is sufficient if it is enough to maintain the ORVs identified in the segment. Rivers with intermittent flows exist in the National System; rivers that represent desert ecosystems having outstanding ecological or other values should be considered.

The BLM guidance contained in BLM Manual 6400 (BLM 2012) states the following:

> …As a general rule, the segment should contain regular and predictable flows (even though intermittent, seasonal, or interrupted). This flow should derive from naturally occurring circumstances (e.g., aquifer discharge, seasonal melting from snow or ice, normal precipitation, or instream flow from spillways or upstream facilities). Caution is advised in applying the free-flow criterion to water courses that only flow during flash floods or unpredictable events. The segment should not be ephemeral (flow lasting only a few days per year in direct response to precipitation). Evaluation of flows should focus on normal water years, with consideration of drought or wet years during the inventory.

2.2.2 Outstandingly Remarkable Values Criteria and Region of Comparison

The determination of whether a river area contains ORVs is a professional judgment and is documented in this report. To be considered as outstandingly remarkable, a river-related value must be a unique, rare, or exemplary feature that is significant at a comparative regional or national scale (region of comparison). Values are scenic, recreational, geological, fish related, wildlife related, historic, cultural, botanical, hydrological, paleontological, or scientific, or other similar values (see **Table 2-2**).

While the spectrum of resources that may be considered is broad, all values should be directly river related. That is, they should have one or more of the following characteristics:

- Be located in the river or on its immediate shore lands (within 0.25 miles on either side of the river)
- Contribute substantially to the functioning of the river ecosystem
- Owe their location or existence to the presence of the river

Table 2-2, Outstandingly Remarkable Values Criteria and Region of Comparison, displays guidelines for the ORVs that determine the eligibility of river segments and the region of comparison that are considered in this report. Only one ORV is needed for eligibility. These criteria are based on the guidelines described in BLM Manual 6400 (BLM 2012).

Table 2-2
Outstandingly Remarkable Values Criteria and Region of Comparison

Outstandingly Remarkable Values	Criteria	Region of Comparisons
Scenic	The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features or attractions within the geographic region. The Visual Resource Inventory may be used in assessing the visual quality and in evaluating the extent of development on scenic values; the rating area must be scenic quality A, as defined by the BLM Visual Resource Inventory Handbook, H-8410-1 (BLM 1986). When analyzing scenic values, additional factors may be considered, such as seasonal variations in vegetation, scale of cultural modifications, and length of time that negative intrusions are viewed. Scenery and visual attractions may be highly diverse over most of the river segment length.	The region of comparison is generally the Great Plains and the Northern Rocky Mountains Physiographic Provinces (BLM 2014). The Great Plains province is characterized by rolling to rough grassy plains, badlands, buttes, mesas, and steep-sided river valleys (breaks). It is further characterized by isolated mountains that are dispersed and lie away from the main body of the Northern Rocky Mountains. This province is characterized by flat, grassy valleys and evergreen-forested mountains, sculpted into dramatic peaks and valleys by tectonic and glacial activity.
Recreational	Recreational opportunities are, or have the potential to be, unusual enough to attract visitors from or beyond the region of comparison. River-related recreational opportunities include sightseeing, interpretation, wildlife observation, camping, photography, hiking, fishing, hunting, and boating. Such a recreational opportunity may be an outstandingly remarkable value without the underlying recreation resource being an outstandingly remarkable value (e.g., fishing may be an outstandingly remarkable value without the fish species being an outstandingly remarkable value). The river may provide, or have the potential to provide, settings for national or regional commercial usage or competitive events.	The region of comparison is people's willingness to travel long distances to access and recreate on a particular segment (e.g., tourism markets internationally, nationwide, and in Montana).
Geologic	The river area contains one or more examples of a geologic feature, process, or phenomenon that is unique or rare within the region of comparison. The feature or features may be in an unusually active stage of development or may	The region of comparison is areas of state or regional geologic importance.

Outstandingly Remarkable Values	Criteria	Region of Comparisons
	represent a textbook example of a unique or rare combination of geologic features (e.g., erosional, volcanic, glacial, or other geologic structures).	
Fish	Fish values are either indigenous fish populations or habitat or a combination of the following river-related conditions: a. Populations—The river is nationally or regionally an important producer of resident, indigenous, or anadromous fish species. Of particular significance is the presence of wild stocks of state or federally listed or candidate, threatened, endangered, or BLM sensitive species. Diversity of species is an important consideration and could, in itself, lead to a determination that it is an outstandingly remarkable value. b. Habitat—The river provides exceptionally high quality habitat for fish species indigenous to the region of comparison. Of particular significance is habitat for wild stocks or state or federally listed or candidate, threatened, endangered, or BLM sensitive species. Diversity of species is an important consideration and could, in itself, lead to a determination that it is an outstandingly remarkable value.	The region of comparison is based on each species.
Wildlife	Wildlife values are either terrestrial or aquatic wildlife populations or habitat or a combination of the following conditions: a. Populations—The river or area within the river corridor contains nationally or regionally important populations of indigenous wildlife species that depend on the river environment. Of particular significance may be species considered to be unique to the area or populations of state or federally listed or candidate, threatened, endangered, or BLM sensitive species. Diversity of species is an important consideration and could, in itself, lead to a determination that it is an outstandingly remarkable value. b. Habitat—The river or area within the river corridor provides exceptionally high quality habitat for wildlife of national or regional	The entire range of that species, especially threatened, endangered, and sensitive species.

Outstandingly Remarkable Values	Criteria	Region of Comparisons
	significance or it may provide unique habitat or a critical link in habitat conditions for state or federally listed or candidate, threatened, or endangered species. Contiguous habitat conditions are such that the biological needs of the species are met. Diversity of species is an important consideration and could, in itself, lead to a determination that it is an outstandingly remarkable value.	
Cultural	The river or area within the river corridor contains rare or outstanding examples of historic or prehistoric locations of human activity, occupation, or use. Examples are locations of traditional cultural or religious importance to specified social or cultural groups. Likely candidates might include a unique plant procurement site of contemporary significance.	National scale using National Register of Historic Places criteria.
Historic	The river or area within the river corridor has scientific value or contains a rare or outstanding example of a district, site, building, or structure that is associated with an event, person, or distinctive style. Likely candidates are sites that are listed on or eligible for listing on the National Register of Historic Places or those that the Secretary of the Interior has designated as national historic landmarks.	National scale using National Register of Historic Places criteria.
Other Similar Values	No specific evaluation guidelines have been developed for the "other similar values" category. Nevertheless, additional values deemed relevant to the eligibility of the river segment should be considered in a manner consistent with the guidance listed above. Other similar values may be hydrological, possess ecological/biological diversity, or offer paleontological, botanical, or scientific study opportunities.	Varies depending on the factor considered.

Source: BLM 2012

2.2.3 Classification Criteria

If a river segment is considered eligible, it is inventoried for and assigned a tentative classification. The criteria for classification used in this evaluation are defined in Section 2(b) of the WSR Act. **Table 2-3**, Classification Criteria, displays the criteria from the WSR Act and the guidance provided in the 1982 Interagency Guidelines for interpreting the criteria.

Table 2-3
Classification Criteria

River Classification Attribute	Wild	Scenic	Recreational
Water Resources Developments (impoundments, diversions, etc.)	Free of impoundment.	Free of impoundment.	Some existing impoundment or diversion.
	N/A	N/A	Low dams, diversions, or other modifications of the waterway are acceptable, provided the waterway remains generally natural and riverine in appearance.
Shoreline Development	Essentially primitive. Little or no evidence of human activity.	Largely primitive and undeveloped. No substantial evidence of human activity.	Some development and substantial evidence of human activity.
	The presence of a few inconspicuous structures, particularly those of historic or cultural value, is acceptable.	The presence of small communities or dispersed dwellings or farm structures is acceptable.	The presence of extensive residential development and a few commercial structures is acceptable.
	A limited amount of domestic livestock grazing or hay production is acceptable.	The presence of grazing, hay production, or row crops is acceptable.	Lands may have been developed for the full range of agricultural and forestry uses.
	Little or no evidence of past timber harvest. No ongoing timber harvest.	Evidence of past or ongoing timber harvest is acceptable, provided the forest appears natural from the riverbank.	May show evidence of past and ongoing timber harvest.
Accessibility	Generally inaccessible except by trail.	Accessible in places by road.	Readily accessible by road or railroad.
	No roads, railroads, or other provision for vehicles in the river area. A few existing roads leading to the boundary of the river area are acceptable.	Roads may occasionally reach or bridge the river. Short stretches of conspicuous or longer stretches of inconspicuous roads or railroads are acceptable.	Parallel roads or railroads on one or both banks as well as bridge crossings and other river access points are acceptable.
Water Quality	Meets or exceeds federal criteria or federally approved state standards for aesthetics,	No criteria prescribed by the WSR Act. The Federal Water Pollution Control Act Amendments of 1972 have made it a national goal that all waters of the US are made fishable and swimmable. Therefore, rivers	

River Classification Attribute	Wild	Scenic	Recreational
	for propagation of fish and wildlife normally adapted to the habitat of the river, and for primary contact recreation (swimming), except where exceeded by natural conditions.	will not be precluded from scenic or recreational classification because of poor water quality at the time of their study, provided a water quality improvement plan exists or is being developed in compliance with applicable federal and state laws.	

Source: BLM 2012

2.3 SUITABILITY CRITERIA

The purpose of the suitability phase of the study process is to determine whether eligible rivers would be appropriate additions to the National System by considering tradeoffs between corridor development and river protection. Suitability considerations include the environment and economic consequences of designation and the manageability of a river if Congress were to designate it.

A suitability study is designed to answer these questions:

- Should the river's free-flowing condition, water quality, and ORVs be protected, or are one or more other uses important enough to warrant doing otherwise?
- Will the river's free-flowing condition, water quality, and ORVs be protected through designation?
- Is there a demonstrated commitment to protect the river by any nonfederal entities that may be partially responsible for implementing protective management?

With the above guidance in mind, the following 13 suitability criteria factors, identified in BLM Manual 6400 (BLM 2012), were applied to each eligible river segment in the suitability study:

1. Characteristics that do, or do not, make the area a worthy addition to the National System. These characteristics (free flow and ORVs) are described in the WSR Act and may include additional factors.
2. The current status of land ownership and use in the area.
3. The reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System.
4. The federal agency that will administer the area should it be added to the National System.

5. The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies.
6. The estimated cost to the US of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area should it be added to the National System.
7. A determination of the extent that other federal agencies, the state, or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System.
8. An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development.
9. The state/local government's capacity to manage and protect the ORVs on nonfederal lands. This factor requires an evaluation of the river protection mechanisms available through the authority of state and local governments. Such mechanisms may include, for example, statewide programs related to population growth management, vegetation management, water quantity or quality, or protection of river-related values such as open space and historic areas.
10. The existing support or opposition of designation. Assessment of this factor will define the political context. The interest in designation or nondesignation by federal agencies; state, local, and tribal governments; national and local publics; and the state's congressional delegation should be considered.
11. The consistency of designation with other agency plans, programs, and policies in meeting regional objectives. Designation may help or impede the goals of tribal governments or other federal, state, or local agencies. For example, designation of a river may contribute to state or regional protection objectives for fish and wildlife resources. Similarly, adding a river that includes a scarce recreation activity or setting to the National System may help meet statewide recreation goals. Designation might, however, limit irrigation and/or flood control measures in a manner inconsistent with regional socioeconomic goals.
12. The contribution to river system or basin integrity. This factor reflects the benefits of a "systems" approach (e.g., expanding the designated portion of a river in the National System or developing a legislative proposal for an entire river system—headwaters to mouth—or watershed). Numerous benefits may result from managing an entire river or watershed, including the ability to design a holistic protection strategy in partnership with other agencies and the public.

13. The potential for water resources development. Identify any proposed water resource projects that may be foregone, as designation may limit development of water resource projects as diverse as irrigation and flood control measures, hydropower facilities, dredging, diversion, bridge construction, and channelization.

CHAPTER 3
ELIGIBILITY EVALUATION

The segments listed in this section have been determined to meet the eligibility criteria described in **Section 2.2**, Eligibility Criteria. In accordance with Section 3.1 of the BLM Manual 6400 (BLM 2012), the BLM does not have the authority to evaluate the presence, absence, or quality of values that occur on private lands. However, the boundary of that river may include private lands. As such, the eligibility determinations in this report are only for those portions of rivers or streams that occur on BLM-administered lands. Eligibility determinations have not been made on portions of rivers or streams occurring on state or private lands.

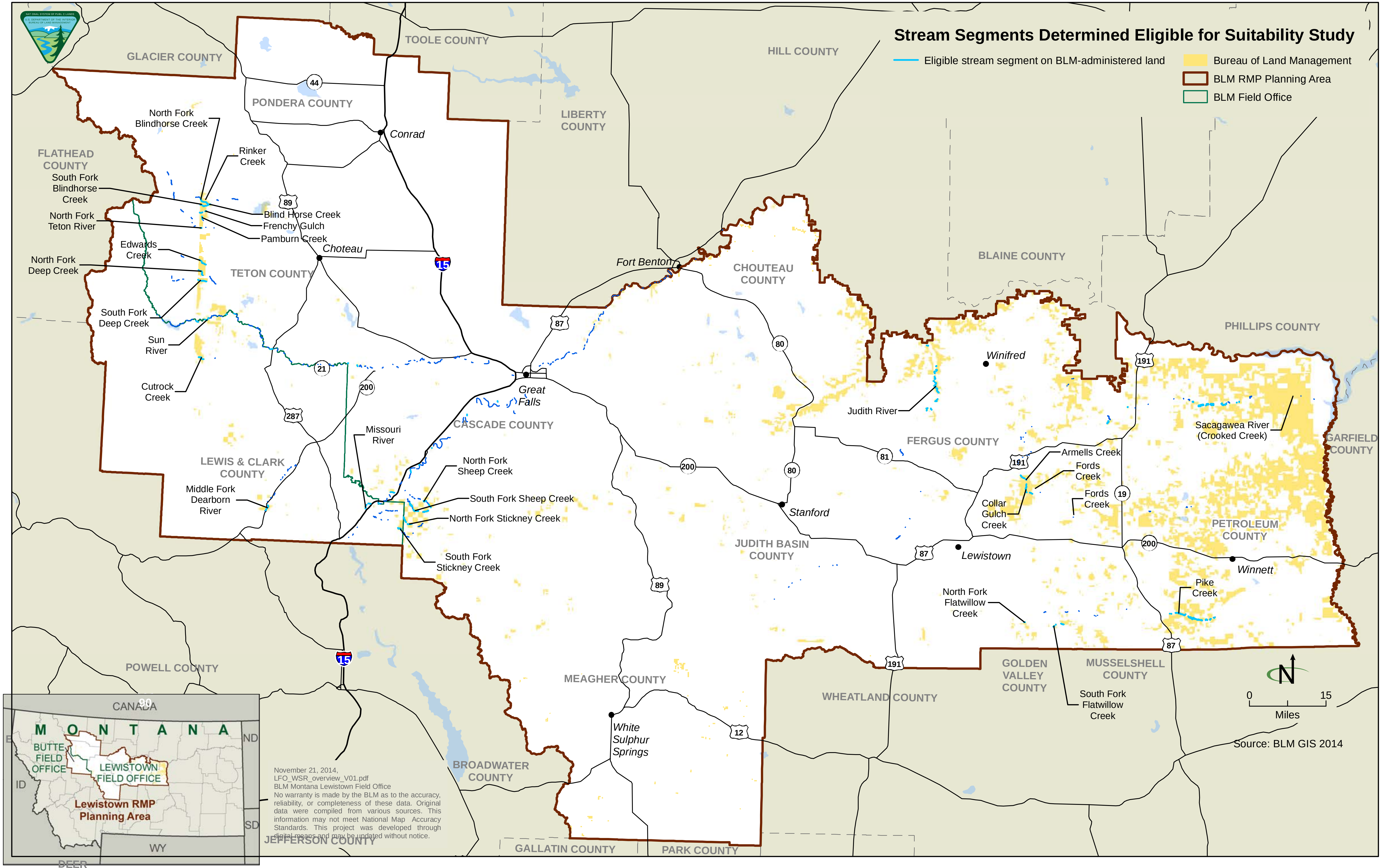
Of the segments identified and evaluated, 27 in the LFO planning area were determined to be eligible for study (see **Table 3-1** and **Figure 3-1**, Stream Segments Determined Eligible for Suitability Study). Refer to **Section 2.1**, Methods Used to Identify River and Stream Segments, for a summary of segments determined not to meet the eligibility criteria.

Table 3-1
Stream Segments Determined Eligible for Suitability Study

River Segment	Length on BLM-administered Land (miles)	Outstandingly Remarkable Value(s)	Tentative Classification
Western Portion of Planning Area			
Blind Horse Creek	0.4	Scenic	Wild
Cutrock Creek	1.2	Scenic	Wild
Edwards Creek	1.8	Scenic	Wild
Frenchy Gulch	0.8	Scenic	Wild
Middle Fork Dearborn River	1.8	Scenic	Recreational
Missouri River	4.7	Scenic, Recreation, Historic	Recreational
North Fork Blindhorse Creek	2.3	Scenic	Wild
North Fork Deep Creek	1.6	Scenic	Wild

River Segment	Length on BLM-administered Land (miles)	Outstandingly Remarkable Value(s)	Tentative Classification
North Fork Sheep Creek	1.5	Scenic	Scenic
North Fork Stickney Creek	2.0	Scenic	Scenic
North Fork Teton River	0.3	Scenic, Fish	Recreational
Pamburn Creek	0.5	Scenic	Wild
Rinker Creek	0.4	Scenic	Wild
South Fork Blindhorse Creek	1.7	Scenic	Wild
South Fork Deep Creek	1.8	Scenic, Fish	Scenic
South Fork Sheep Creek	4.1	Scenic	Scenic
South Fork Stickney Creek	1.2	Scenic	Scenic
Sun River Segment 1	1.7	Scenic, Recreation, Fish, Cultural	Recreational
Sun River Segment 2	1.3	Recreation, Fish, Cultural	Recreational
Eastern Portion of Planning Area			
Armells Creek	1.3	Scenic	Scenic
Collar Gulch Creek	2.5	Scenic, Fish	Scenic
Fords Creek	1.3	Scenic	Scenic
Judith River	6.9	Geology	Scenic
North Fork Flatwillow Creek	0.3	Scenic	Scenic
Pike Creek	11.1	Fish	Recreational
Sacagawea River (also known as Crooked Creek)	33.5	Fish	Scenic
South Fork Flatwillow Creek	1.1	Scenic	Scenic

Source: BLM 2010



Stream Segments Determined Eligible for Suitability Study

Eligible stream segment on BLM-administered land
Bureau of Land Management
BLM RMP Planning Area
BLM Field Office

Source: BLM GIS 2014

November 21, 2014,
LFO_WSR_overview_V01.pdf
BLM Montana Lewistown Field Office
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Eligibility evaluations for the 19 segments in the western portion of the planning area determined to be eligible are included in that portion of the planning area's *Final Eligibility Report* (BLM 2010). Eligibility evaluations for the eight segments in the eastern portion of the planning area are discussed below.

3.1 ARMELLS CREEK

Location:	Northern Fergus County. Township 17 North, Range 20 East, Section 17 SW ¼, Section 18 NW ¼, NE ¼, and SE ¼ See **Figure 3-2**, Armells Creek		
Total Segment Length:	63.0 miles	**Length on BLM Land:**	1.3 miles
Tentative Classification:	Scenic		
ORVs:	Scenic		

Segment Location and General Description

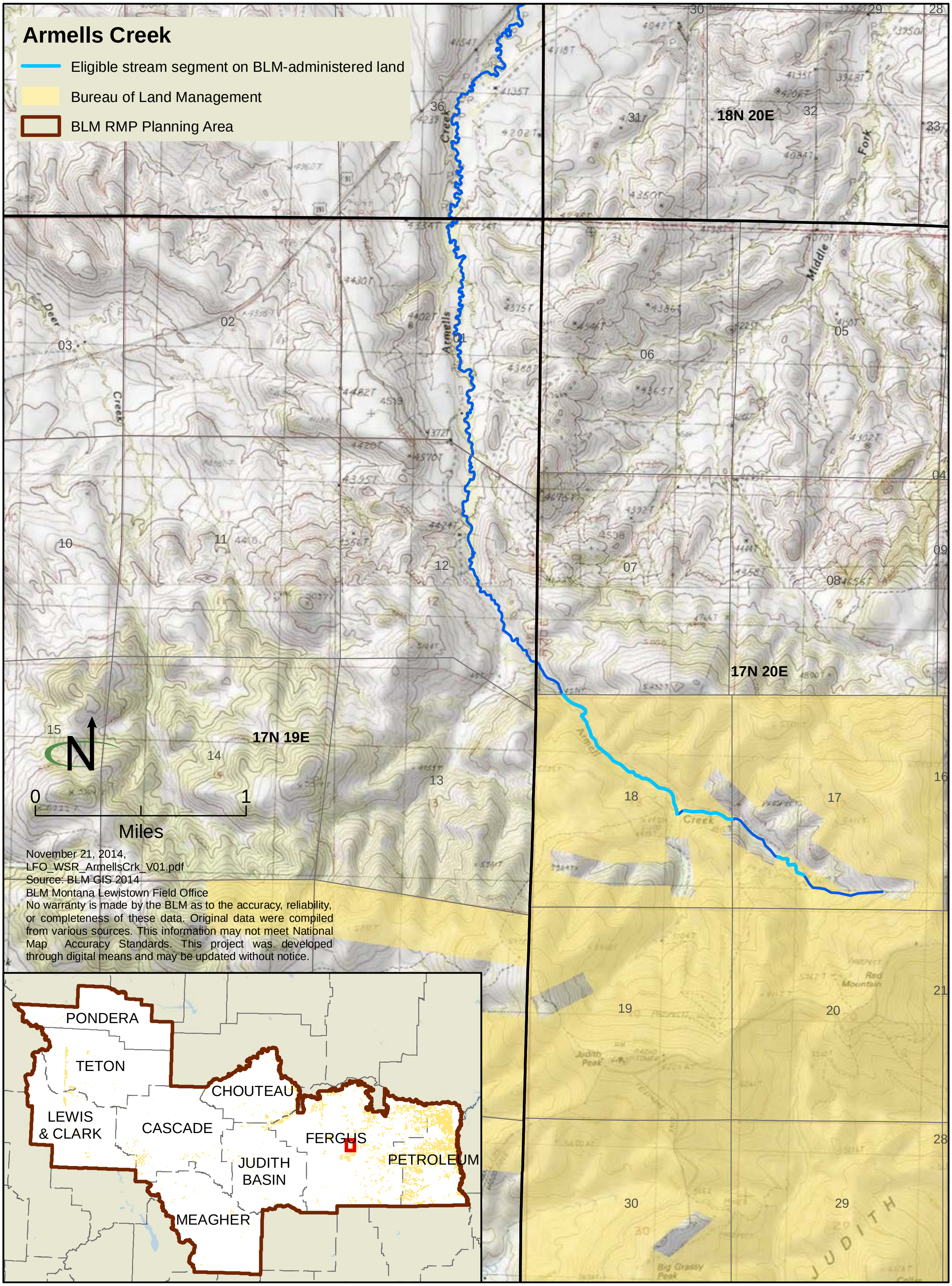
Armells Creek is in northern Fergus County and originates in the Judith Mountains. It generally flows northeast, through the southeastern portion of the Upper Missouri River Breaks National Monument. Shortly after exiting the monument, Armells Creek joins the Missouri River. Access is via US Highway 191, Irish Road, and Horse Ranch Road. The public can access the creek where it is contiguous with the Judith Mountains. Segments of Armells Creek on BLM-administered land are generally located in segments in the north, next to the Upper Missouri River Breaks National Monument, and segments to the south in the Judith Mountains.

Description of Outstandingly Remarkable Values

Scenic. Approximately 1.3 miles of the Armells Creek segment are rated scenic quality A, which is the BLM's classification for most valued scenery. The segment portions of Armells Creek that contribute to the scenic quality A rating are due to the presence of water, contrast in soils and vegetation, seasonal color variations of increasing variety and interest, and lack of localized cultural modifications. The remaining portions of the segment are scenic quality B, and are determined to be ineligible.

Tentative Classification

This segment has been tentatively classified as **scenic**. It is free of impoundments. Roads in the vicinity of the segment are unimproved dirt roads, which are impassible during wet weather; accordingly, the area is generally undeveloped. Overall, the segment appears largely primitive and undeveloped, with little evidence of substantial human activities.



November 21, 2014,
LFO_WSR_ArmellsCrk_V01.pdf
Source: BLM GIS 2014
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.

3.2 COLLAR GULCH CREEK

Location: Central Fergus County. Township 17 North, Range 20 East, Section 20 SW ¼, Section 29 NW ¼ and SW ¼, Section 32 NW ¼ and NE ¼, and Section 33 NW ¼ and SW ¼
See **Figure 3-3**, Collar Gulch Creek

Total Segment Length: 6.4 miles **Length on BLM Land :** 2.5 miles

Tentative Classification: Scenic

ORVs: Scenic, Fish

Segment Location and General Description

Collar Gulch Creek is in central Fergus County. The creek originates on BLM-administered land in the Judith Mountains and flows southeast to its confluence with Fords Creek. Access is from the Collar Gulch Trial, a hiking trail that traverses the upper watershed in the Judith Mountains. Access to the trailhead is from Judith Peak Road.

Collar Gulch Creek is listed as impaired for metals on the 2012 list of impaired waters pursuant to section 303(d) of the 1972 Clean Water Act (MDEQ and EPA 2013). This indicates that water quality in this portion of Collar Gulch Creek does not meet state water quality standards. In response, the Montana Department of Environmental Quality (MDEQ) has developed total maximum daily loads for Collar Gulch Creek. A total maximum daily load is the maximum amount of a pollutant a water body can receive and still meet water quality standards. An assessment of potential sources of metals loading to Collar Gulch Creek was performed in 2011. The GIS analysis identified eight abandoned mines in the upper half of the drainage, including the Tail Holt Mine, which is on the MDEQ's list of priority abandoned mines (MDEQ and EPA 2013).

Description of Outstandingly Remarkable Values

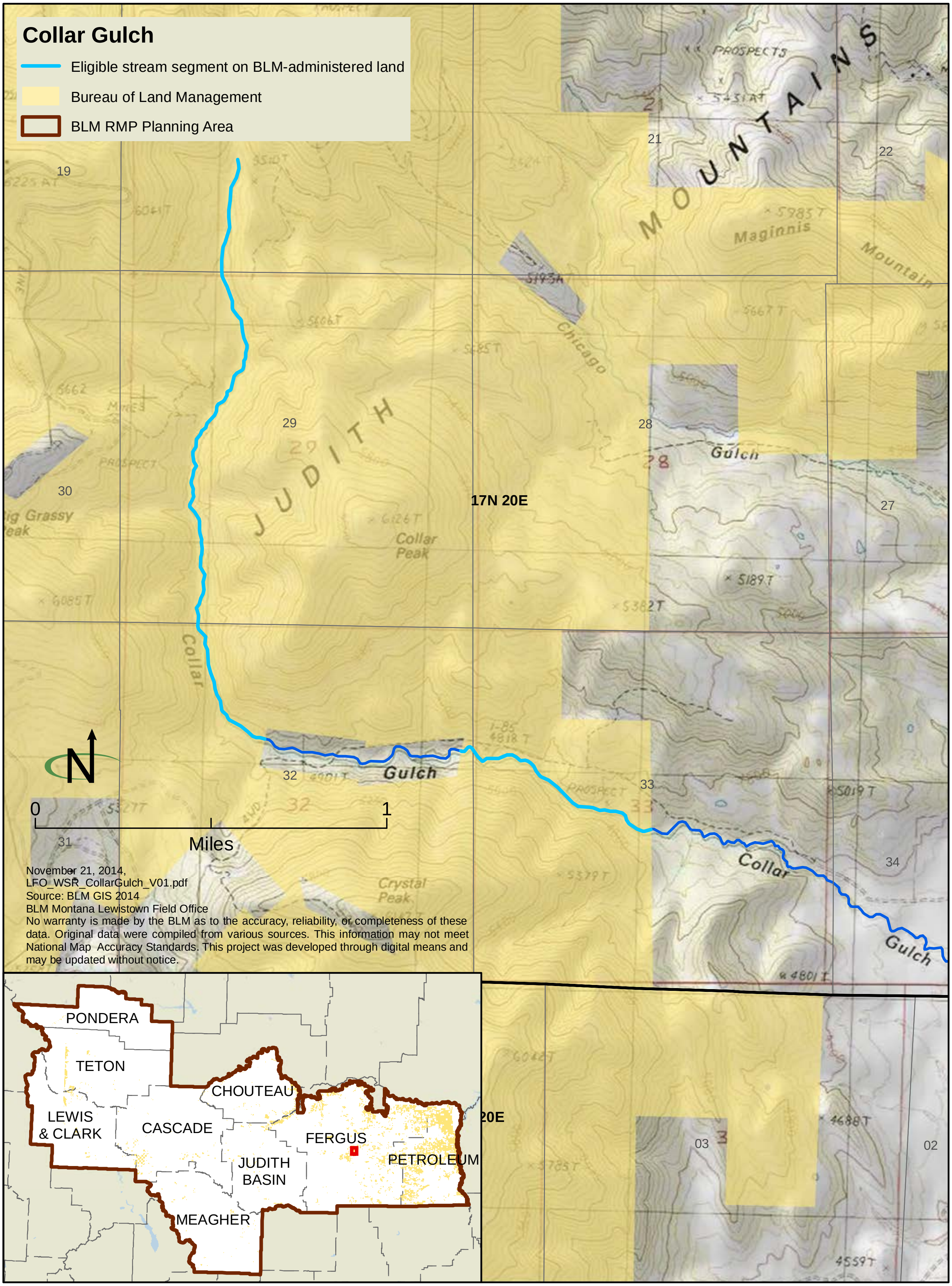
Scenic. The Judith Mountains are a unique habitat in the eastern LFO jurisdiction. The high-elevation landscape supports stands of evergreen conifer forest. Approximately 2.5 miles of the segment are scenic quality rating A, which is the BLM's classification for most valued scenery.

Fish. Collar Gulch Creek contains the eastern-most population of genetically pure westslope cutthroat trout (*Oncorhynchus clarki lewisi*), a BLM sensitive species and MFWP state species of special concern.

Recreation. ORVs for recreation were considered but determined not to meet ORV criteria because river-related opportunities are not unusual enough to attract visitors from beyond the region of comparison. Fisheries values do not present outstanding angling opportunities due to the size of fish classes and difficulty in fishing the waters.

Tentative Classification

This segment has been tentatively classified as **scenic**. It is free of impoundments. Access to the trail is from a developed hiking trail. The watershed is generally undeveloped, though several gold mines are present outside of the 0.5-mile stream corridor. Overall, the segment appears largely primitive and undeveloped, with little evidence of substantial human activities.



November 21, 2014,
LFO_WSR_CollarGulch_V01.pdf
Source: BLM GIS 2014
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.

3.3 FORDS CREEK

Location:	Central Fergus County. Township 17 North, Range 20 East, Section 20 SE ¼, Section 21 SW ¼, Section 28 North ½, and Section 27 NW ¼ See **Figure** 3-4, Fords Creek		
Total Segment Length:	72.9 miles	**Length on BLM Land :**	1.3 miles
Tentative Classification:	Scenic		
ORVs:	Scenic		

Segment Location and General Description

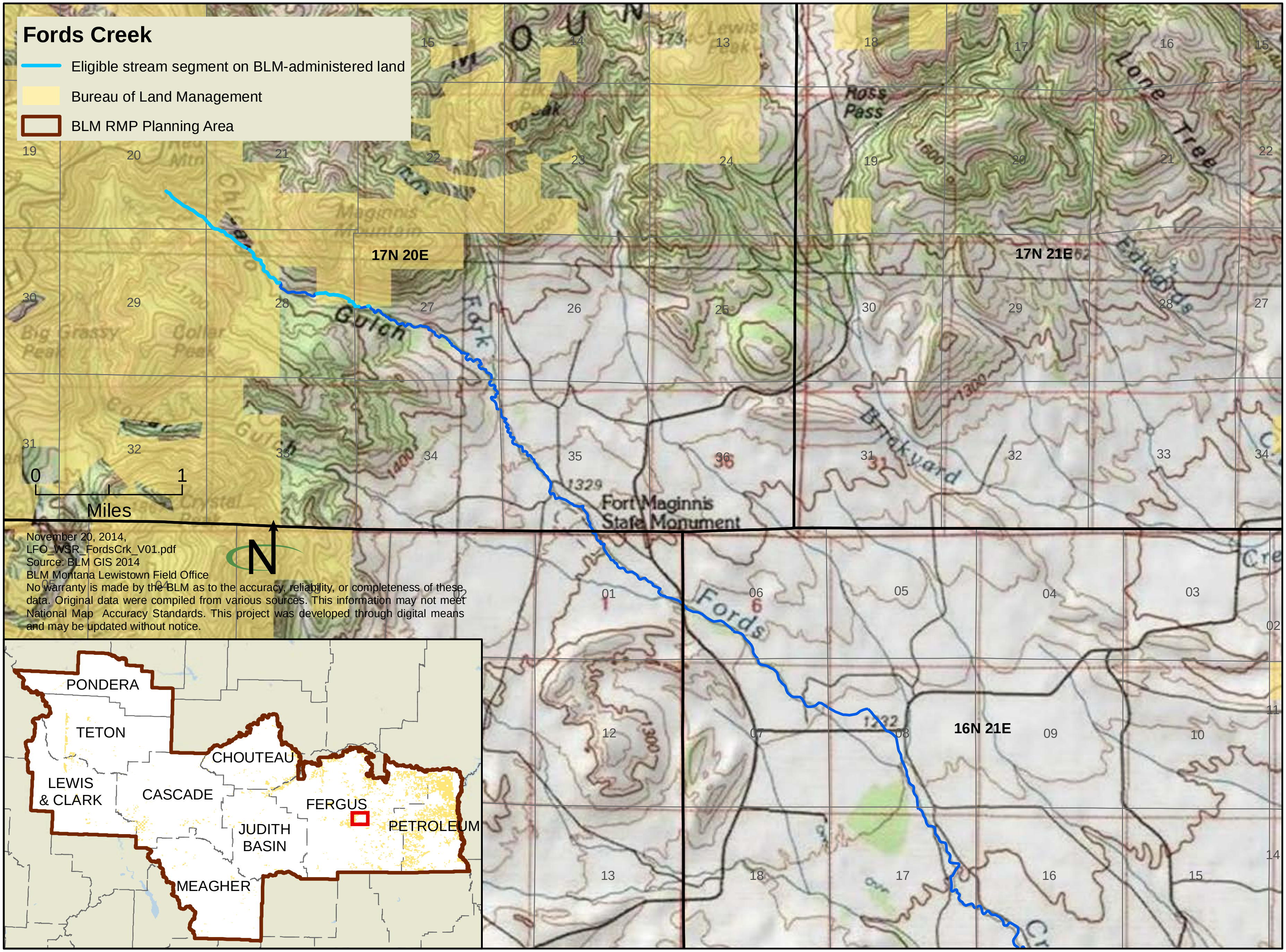
Fords Creek is in central Fergus County. It originates on BLM-administered land in the Judith Mountains and flows east to its confluence with Box Elder Creek in western Petroleum County. Fords Creek is composed of approximately eight individual study segments scattered over nearly 40 straight-line miles of stream. Segments east of the Judith Mountains are affected by ranching, grazing, or agriculture, and very little public access exists within these segments because of the private landownership pattern in the area.

Description of Outstandingly Remarkable Values

Scenic. The Judith Mountains are a unique habitat in the eastern LFO jurisdiction. The high-elevation landscape supports stands of evergreen conifer forest. Approximately 1.3 miles of the segment are scenic quality rating A, which is the BLM's classification for most valued scenery. Segments outside of the Judith Mountains do not contain ORVs.

Tentative Classification

This segment has been tentatively classified as **scenic**. It is free of impoundments. The watershed is generally undeveloped, though several gold mines are present outside of the 0.5-mile stream corridor. Overall, the segment appears largely primitive and undeveloped with little evidence of substantial human activities.



Fords Creek

November 20, 2014,
LFO_WSR_FordsCrk_V01.pdf
Source: BLM GIS 2014
BLM Montana Lewistown Field Office

No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.

3.4 JUDITH RIVER

Location: Northern Fergus County. Township 20 North, Range 16 East, Section 12 East ½,
Township 19 North, Range 17 East, Section 7 SE ¼, Township 20 North, Section 17 East, Section 32 South ½, Section 28 NW ¼, Section 29 NE ¼, Section 20 SE ¼, NE ¼, and NW ¼, Section 17 SW ¼, NE ¼, and NW ¼, Section 8 West ½, Section 5 North ½,
Township 21 North, Range 17 East, Section 31 East ½,
Township 21 North, Range 16 East, Section 12 NW ¼, and Section 11 NE ¼
See **Figure 3-5**, Judith River

Total Segment Length: 119.2 miles **Length on BLM Land :** 6.9 miles

Tentative Classification: Scenic

ORVs: Geologic

Segment Location and General Description

The Judith River is in the central portion of the LFO planning area, in Judith Basin and Fergus Counties. It originates in the Little Belt Mountains and flows north toward its confluence with the Missouri River. While developing the Judith-Valley-Phillips RMP/EIS, the interdisciplinary team determined the Ming Coulee to Anderson Bridge segment of the Judith River to be eligible for WSR consideration (BLM 1994). Portions of the Judith River are currently listed as impaired (non-pollution impairment) on the 2014 305(b) list (EPA 2014). These portions comprise approximately 6.7 miles of river segment on BLM-administered land. This indicates that water quality in this portion of the river does not meet state water quality standards. Probable causes of impairment include alteration of streamside or littoral vegetation, due in part to grazing and agricultural activities (EPA 2014).

Description of Outstandingly Remarkable Values

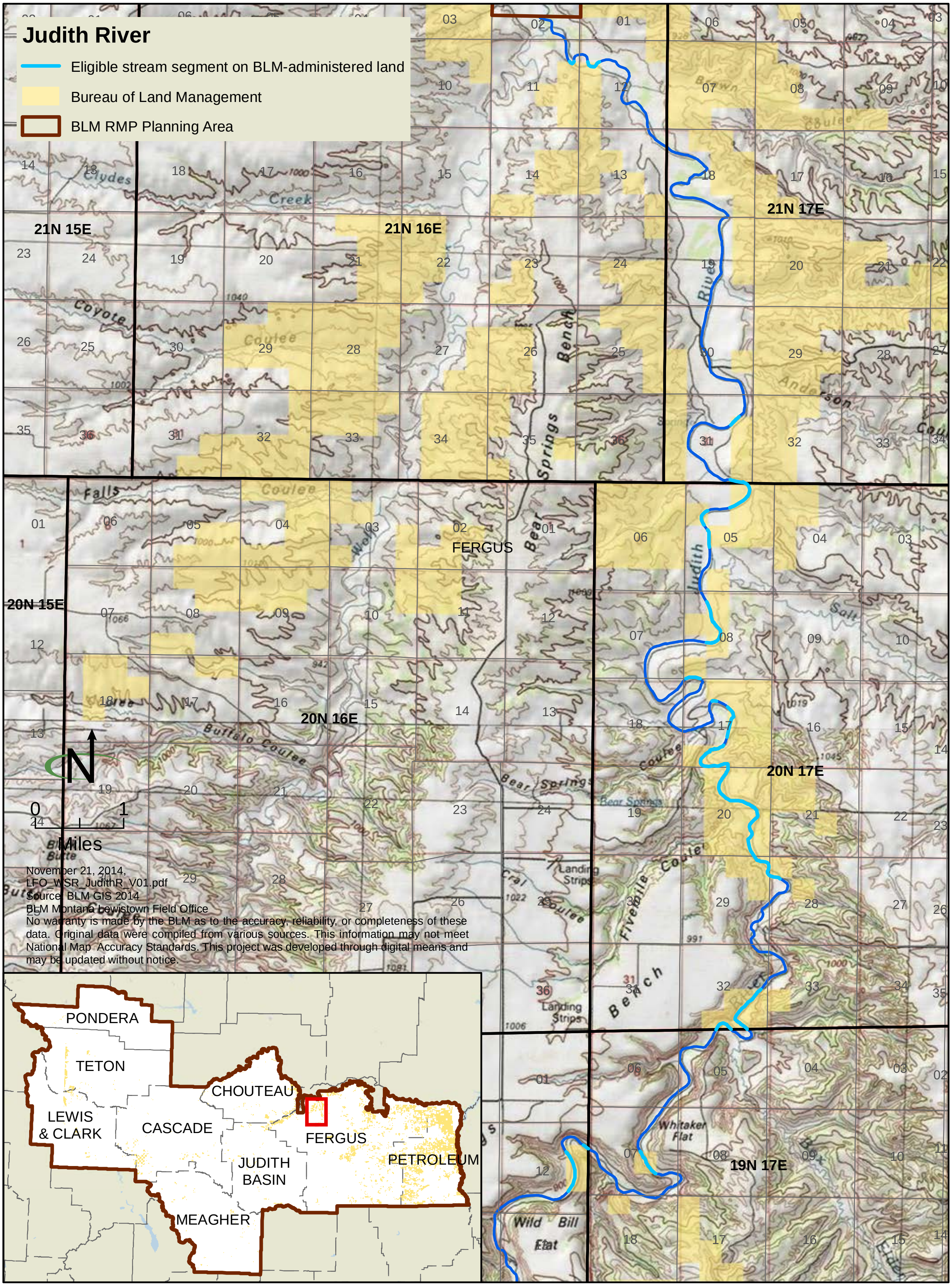
Geologic. Geology in the upper half of the segment is dominated by highly scenic white cliffs of Virgelle sandstone (the lower unit of the Eagle sandstone formation). These appear as rimrocks along a narrow river valley at Ming Coulee. They slip below the alluvium of the valley floor just below the segment's confluence with Box Elder Creek. As the white Virgelle sandstone moves from the rim to the valley floor, it is replaced along the rim, and then along the slopes, by alternating beds of gray to buff sandstone, shale, carbonaceous shale, and coal of the upper and middle members of the Eagle formation. The Eagle formation is then overlain by the brownish-gray marine shales of the Claggett formation. As Anderson Bridge is approached, cliffs again appear along the rim. Here the light-brown sandstone of the Judith River formation becomes more and more of a dominant feature. The Claggett and Judith River formations form badlands-type topography.

Recreation. ORVs for recreation were considered but determined not to meet ORV criteria because river-related opportunities are limited due to a lack of public access.

Wildlife. ORVs for wildlife were considered but determined not to meet ORV criteria because there are no nationally or regionally important populations of indigenous wildlife species that depend on the river environment. The river or area within the river corridor does not provide exceptionally high-quality habitat for wildlife of national or regional significance, nor does it provide unique habitat or a critical link in habitat conditions for state, federally listed, or candidate, threatened, or endangered species.

Tentative Classification

The segment of the Judith River between Ming Coulee and Anderson Bridge is tentatively classified as **Scenic**. The river is free of impoundments. It is inaccessible except by unobtrusive vehicle trails, and they are only briefly visible from the water's surface. Its watershed and shoreline are primitive except for irrigation pumps just above Anderson Bridge. The Judith River's waters are unpolluted, with the possible exception of agricultural chemicals that may be leaching into the river above this segment. The only elements to detract from the segment fully representing a vestige of primitive America are the abandoned homestead below Box Elder Creek and the Judith River Ranch headquarters and fence.



Judith River

November 21, 2014, LFO_WSR_JudithR_V01.pdf
Source: BLM GIS 2014
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.

3.5 NORTH FORK FLATWILLOW CREEK

Location: Southern Fergus County. Township 12 North, Range 20 East, Section 4, SE ¼
See **Figure** 3-6, North Fork Flatwillow Creek

Total Segment Length: 29.3 miles **Length on BLM Land :** 0.3 miles

Tentative Classification: Scenic

ORVs: Scenic

Segment Location and General Description

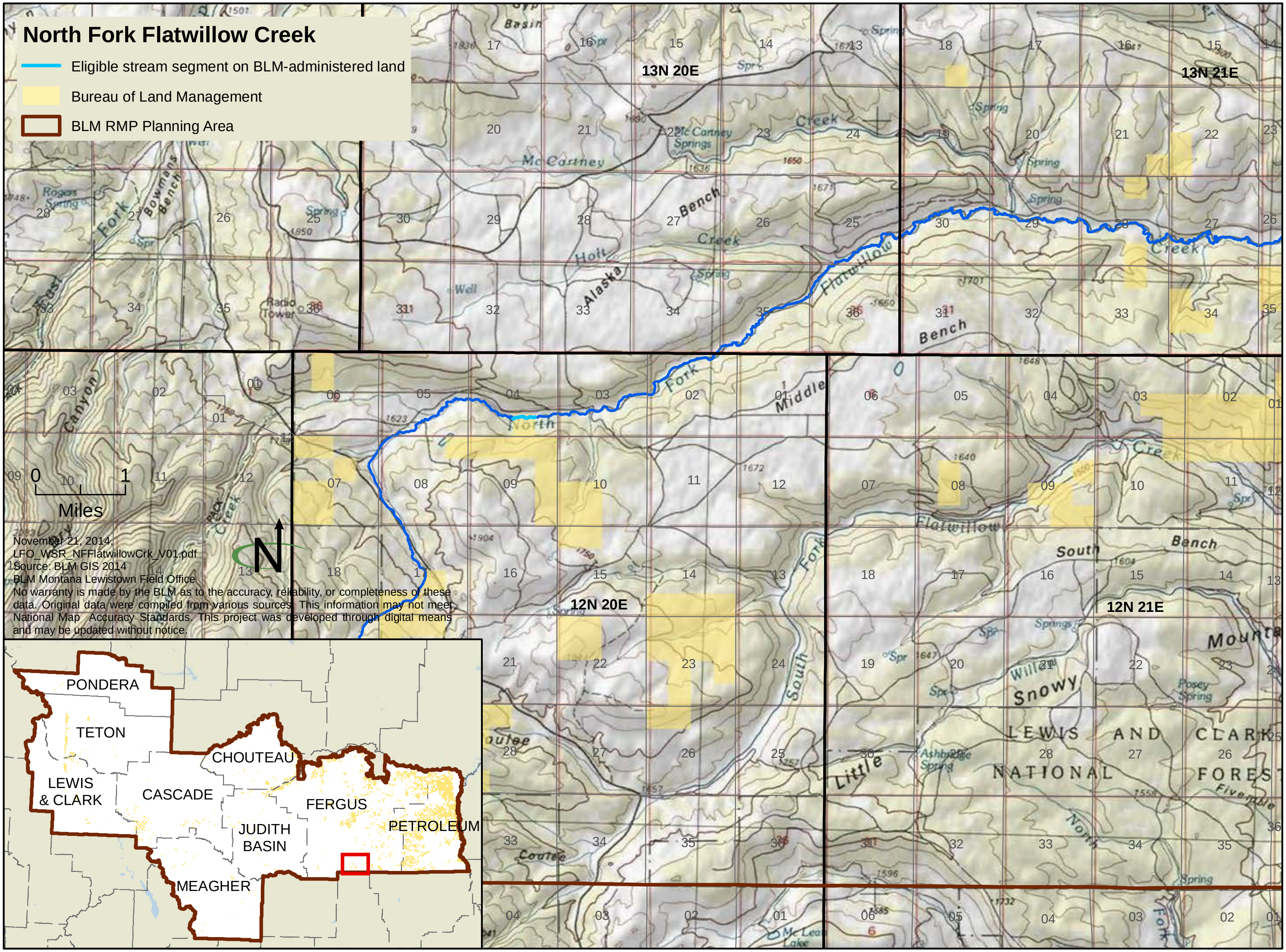
North Fork Flatwillow Creek originates in the Little Snowy Mountains in southeast Fergus County. The creek flows east to its confluence with South Fork Flatwillow Creek, where it becomes Flatwillow Creek. Flatwillow Creek flows east, eventually joining Box Elder Creek in southern Petroleum County. The study segment on North Fork Flatwillow Creek is in a shallow, evergreen-forested valley in the foothills of the Little Snowy Mountains. Most of the surrounding land is private; there is some evidence of ranching, including cattle fencing, dirt roads, and a culvert over a creek crossing.

Description of Outstandingly Remarkable Values

Scenic. The entire study segment is scenic quality rating A, which is the BLM's classification for most valued scenery. North Fork Flatwillow Creek contributes to the scenic quality A rating. The criteria for this rating are the presence of water, landform characteristics, variety and contrast between vegetation types, seasonal variation of willow and aspen, and absence of localized cultural modifications.

Tentative Classification

This segment has been tentatively classified as **scenic**. It is free of impoundments. The watershed is generally undeveloped, though there is evidence of grazing, such as fences and several dirt roads. Overall, the segment appears largely primitive and undeveloped, with little evidence of substantial human activities.



North Fork Flatwillow Creek

▬ Eligible stream segment on BLM-administered land

🟨 Bureau of Land Management

▭ BLM RMP Planning Area

November 21, 2014,
LFO_WSR_NFFlatwillowCrk_V01.pdf
Source: BLM GIS 2014
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.

3.6 PIKE CREEK

Location:	Southern Fergus County. Township 13 North, Range 25 East, Section 31 NW ¼, Section 29 South ½, Section 28 SW ¼, Section 33 North ½, Section 34 NW ¼ and SE ¼, Section 35 South ½ Township 12 North, Range 25 East, Section 1 North ½, Township 12 North, Range 26 East, Section 6 North ½, Section 5 North ½, Section 4 North ½, Section 3 NW ¼, Township 13 North, Range 26 East, Section 33 South ½ See **Figure 3-7**, Pike Creek		
Total Segment Length:	34.3 miles	**Length on BLM Land :**	11.1 miles
Tentative Classification:	Recreational		
ORVs:	Fish		

Segment Location and General Description

Pike Creek originates in southeast Fergus County in the foothills of the Big Snowy Mountains. It flows east into Petroleum County before its confluence with Flatwillow Creek. No portion of the creek is on BLM-administered land in Fergus County. However, access to segments of the creek is via Pike Creek Road, which is on BLM-administered land. State Highway 87 and State Route 244 cross the creek in two locations, but no public access is available due to private lands.

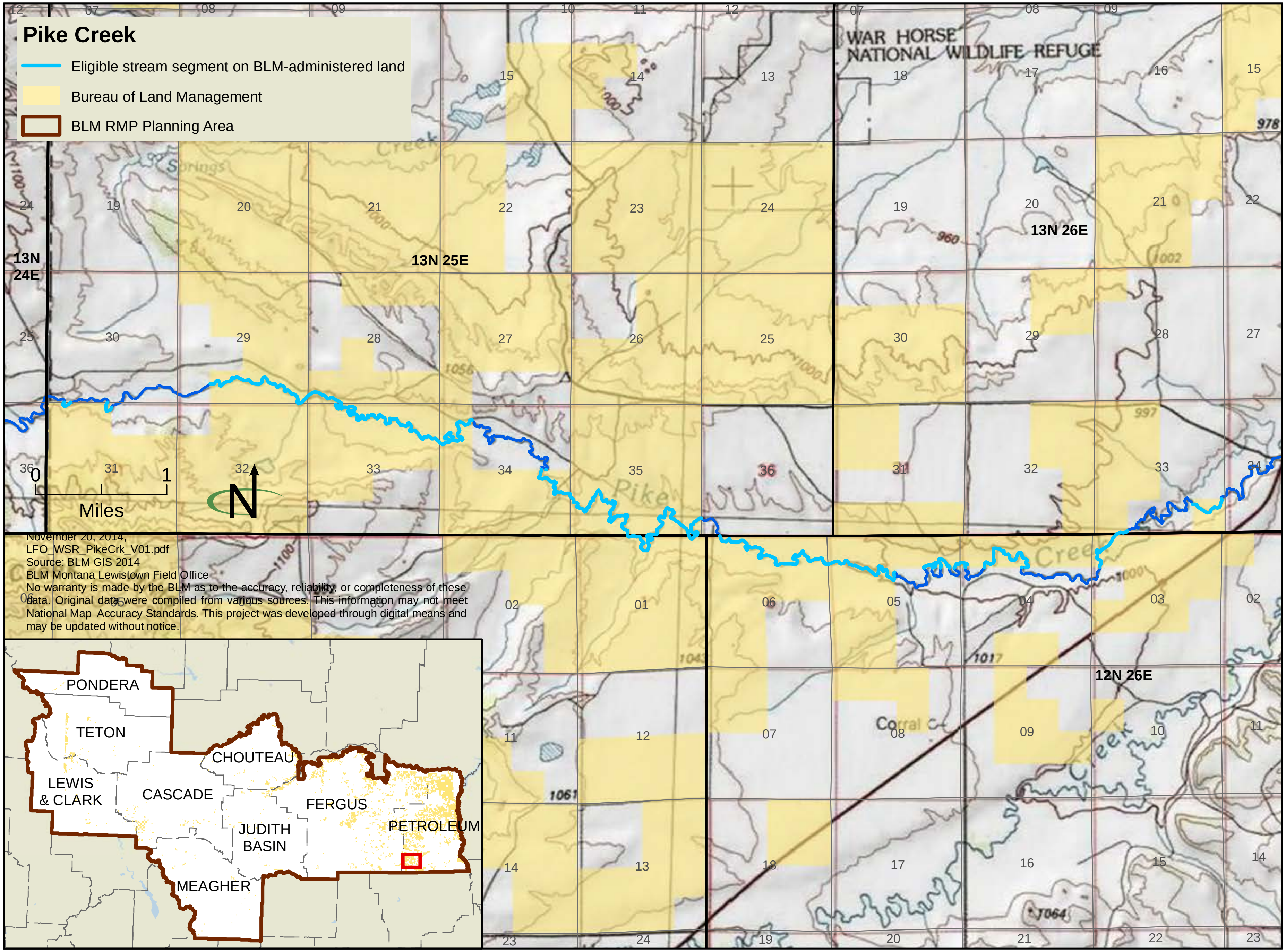
Description of Outstandingly Remarkable Values

Fish. Pike Creek supports a population of northern redbelly x finescale dace hybrid (*Chrosomus eos* x *C. neogaeus* [syn. = *Phoxinus e.* x *P. n.*]). This fish is a Montana species of special concern (S3) and a BLM sensitive species. The S3 ranking denotes that it is potentially at risk because of limited or declining numbers or range or habitat, even though it may be abundant in some areas. It was placed on the species of concern list due to its rarity and unusual form of genetic reproduction (Montana Field Guide 2014; Montana AFS 2001). Montana appears to be the only state where the hybrid species has a special status listing, though other states identify the northern redbelly dace or the finescale dace as special status species (Montana Chapter of the American Fisheries Society 2001).

Further inventory is needed to better define the species' distribution in Montana. The hybrid species is difficult to differentiate from the northern redbelly dace in the field; for this reason it is likely that some waters thought to contain only northern redbelly dace may also contain the hybrid. Northern redbelly dace are not extremely common in Montana. Surveys have been conducted on 43 prairie streams of the Missouri and Yellowstone Rivers. Northern redbelly dace was identified at just three sites, one of which contained the hybrid. Few prairie streams in Montana have the clear pool habitat preferred by northern redbelly dace (Montana Field Guide 2014).

Tentative Classification

This segment has been tentatively classified as **recreational**. It is free of impoundments. Ranching is widespread in the vicinity, and grazing improvements are common.



Pike Creek

November 20, 2014,
LFO_WSR_PikeCrk_V01.pdf
Source: BLM GIS 2014
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.

3.7 SACAGAWEA RIVER (ALSO KNOWN AS CROOKED CREEK)

Location: Fergus and Petroleum Counties.
Township 19 North, Range 22 East, Section 24
Township 19 North, Range 23 East, Section 3
Township 20 North, Range 25 East, Sections 29, 34, and 35
Township 19 North, Range 25 East, Section 1
Township 19 North, Range 26 East, Sections 6, 5, 3, and 2
Township 20 North, Range 26 East, Sections 32 and 34
Township 20 North, Range 27 East, Sections 31, 32, 27, 26, and 25
Township 20 North, Range 28 East, Sections 30, 19, 29, 28, 27, 26, and 25
Township 20 North, Range 29 East, Sections 30, 29, and 28
See **Figure 3-8**, Sacagawea River (Crooked Creek)

Total Segment Length: 105.9 miles **Length on BLM Land :** 33.5 miles

Tentative Classification: Scenic

ORVs: Fish

Segment Location and General Description

The segment originates in northeastern Fergus County and flows generally east through Petroleum County toward its confluence with the Musselshell River. Due to the scattered landownership pattern over much of the area, this segment is composed of many small segments on BLM-administered land over an approximately 40-mile length of stream. BLM-administered land is concentrated in three areas: within the headwaters of the stream, near the confluence with Antelope and Little Crooked Creeks, and near the confluence with the Musselshell River.

Description of Outstandingly Remarkable Values

Fish. Sacagawea River (also known as Crooked Creek) is a regionally important producer of indigenous resident fish species and provides habitat for diverse populations of prairie fish. At least 15 species of prairie fish, most of which are native, are known to inhabit these segments. These species are as follows (MFWP 2014):

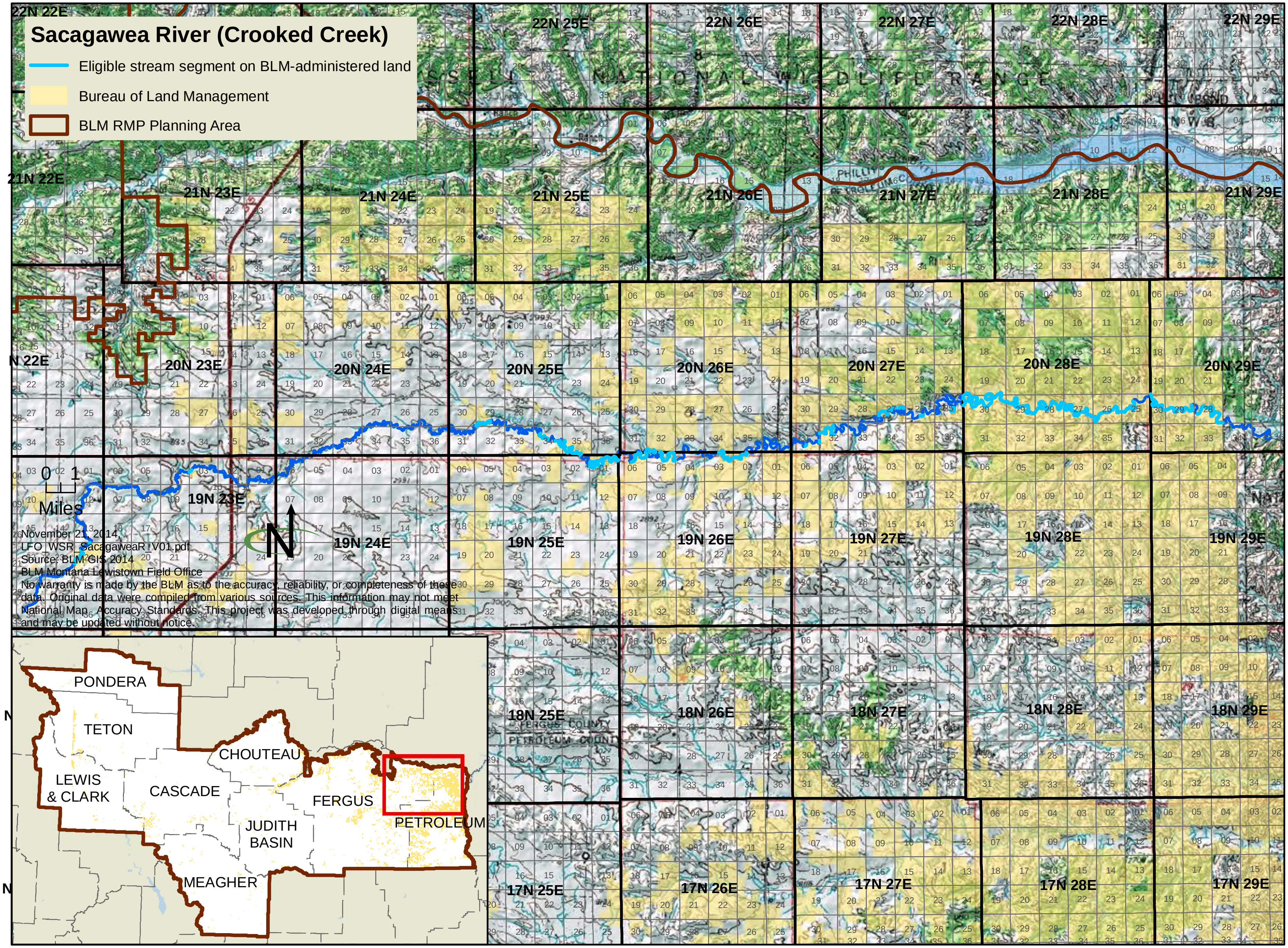
- Black bullhead (*Ameiurus melas*)
- Brook stickleback (*Culaea inconstans*, native, potential species of concern)
- Channel catfish (*Ictalurus punctatus*, native)
- Common carp (*Cyprinus carpio*)
- Fathead minnow (*Pimephales promelas*, native)
- Flathead chub (*Platygobio gracilis*, native)
- Green sunfish (*Lepomis cyanellus*)

- Lake chub (*Couesius plumbeus*, native)
- Longnose dace (*Rhinichthys cataractae*, native)
- Northern pike (*Esox lucius*, native)
- Plains minnow (*Hybognathus placitus*, native, potential species of concern)
- River carpsucker (*Carpiodes carpio*, native)
- Sand shiner (*Notropis stramineus*, native)
- Western silvery minnow (*Hybognathus argyritis*, native)
- White sucker (*Catostomus commersoni*, native)

The river provides exceptionally high quality habitat for a broad diversity of native and introduced warm-water fish species. This diversity of representative prairie fisheries is an ORV.

Tentative Classification

This segment has been tentatively classified as **scenic**. It is free of impoundments. Roads in the vicinity of the segment are unimproved dirt roads, which may be impassible during wet weather. Accordingly, the area is generally undeveloped, though cattle appear to be grazed in the area. Overall, the segment appears largely primitive and undeveloped, with little evidence of substantial human activities.



Sacagawea River (Crooked Creek)

- Eligible stream segment on BLM-administered land
- Bureau of Land Management
- BLM RMP Planning Area

November 21, 2014
LFO_WSR_SacagaweaR_V01.pdf
Source: BLM GIS 2014
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.

3.8 SOUTH FORK FLATWILLOW CREEK

Location: Southern Fergus County. Township 12 North, Range 21 East, Section 9 SW ¼ and NE ¼, Section 10 NE ¼, and Section 11 NW ¼

See **Figure 3-9**, South Fork Flatwillow Creek

Total Segment Length: 25.1 miles **Length on BLM Land :** 1.1 miles

Tentative Classification: Scenic

ORVs: Scenic

Segment Location and General Description

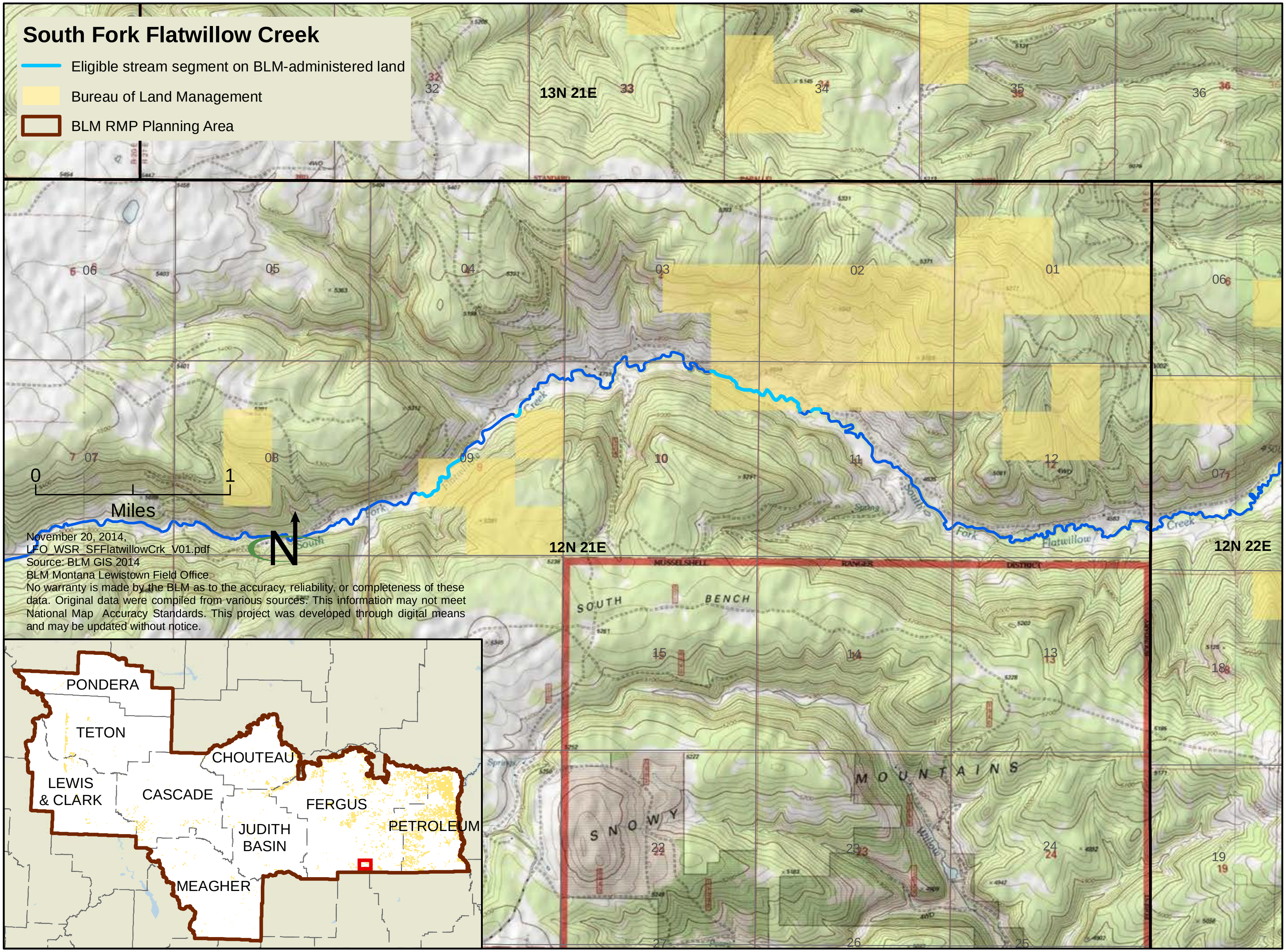
South Fork Flatwillow Creek originates in the Little Snowy Mountains in southeast Fergus County. The creek flows east to its confluence with North Fork Flatwillow Creek. Combined, they become Flatwillow Creek. This creek flows east, eventually joining Box Elder Creek in southern Petroleum County. The study segments on South Fork Flatwillow Creek are in a steep-sided, evergreen-forested canyon in the foothills of the Little Snowy Mountains. Most of the surrounding land is private, and there is some evidence of ranching, including cattle fencing and dirt roads. South Fork Flatwillow Creek supports a well-developed willow-scrub riparian community within the study segments.

Description of Outstandingly Remarkable Values

Scenic. The entire study segment is scenic quality rating A, which is the BLM's classification for most valued scenery. South Fork Flatwillow Creek contributes to the scenic quality A rating due to presence of water, landform characteristics, variety and contrast between vegetation types, seasonal variation of willow and aspen, and absence of localized cultural modifications.

Tentative Classification

This segment has been tentatively classified as **scenic**. It is free of impoundments. The watershed is generally undeveloped, though evidence of grazing—fences and several dirt roads—are present. Overall, the segment appears largely primitive and undeveloped, with little evidence of substantial human activities.



South Fork Flatwillow Creek

November 20, 2014,
LFO_WSR_SFFlatwillowCrk_V01.pdf
Source: BLM GIS 2014
BLM Montana Lewistown Field Office
No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice.

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CHAPTER 4
SUITABILITY EVALUATION

After a suitability analysis, as documented in this section, none of the 27 eligible segments were found suitable for inclusion in the National System. The suitability criteria presented in this section are summarized from the criteria presented in **Section 2.3**, Suitability Criteria.

4.1 ARMELLS CREEK

Tentative Classification: Scenic **ORVs:** Scenic

4.1.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***

   The creek originates in high country in the Judith Mountains. The headwaters of Armells Creek are north of Red Mountain. It is a tributary of the Missouri River. There are approximately eight individual study segments. There are 1.3 miles on BLM-administered land and 63 miles of total stream length. Downstream, the creek flows past numerous private landowners. All segments not in the Judith Mountains are affected by ranching, grazing, and agriculture.

   These lands hold an array of plant life, wildlife, unique geological features, recreation opportunities, and significant historical and cultural values. The breaks combine with flowing water and diverse vegetation and badlands to form dramatic landscapes. Approximately 1.3 miles of the segment are scenic quality A, which is the BLM's classification for highest scenic quality. The segments with a scenic quality rating of A are proposed for eligibility. The remaining portions of the segment (totaling 7.1 miles) are scenic quality B and are not eligible.

2. ***Current status of landownership and use in the area***

   There are private and BLM-administered lands in the area. Both sides of segments of Armells Creek totaling 1.3 miles are BLM-administered lands. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 610 acres, 420 acres (69 percent) are BLM-administered lands and 190 acres (31 percent) are private lands.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***

   The segment could potentially be designated within an Area of Critical Environmental Concern (ACEC) or RMA, which would support the identified Scenic ORV. These lands could be enhanced with the segment's inclusion in the National System, but this is not dependent on its inclusion.

4. ***The federal agency that will administer the area should it be added to the National System***

   If Armells Creek were added to the National System, the BLM would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   Participation from state or local agencies would not be expected due to the lack of interest, ownership, and/or jurisdiction within the corridors.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   Administrative Costs: It is not expected that WSR designation would substantially increase management costs in this river corridor due to the present costs of complying with existing federal laws; however, there is likely to be some increased cost of administering the area if designated. No detailed cost analysis or estimate was prepared as part of this study.

   Land Acquisition: At this time, it is not expected that the BLM would pursue land acquisition from willing sellers. Because the majority of the land within the lower segment corridors is privately owned, it would be difficult for the BLM to acquire enough additional land to affect the manageability of the segment. No detailed cost analysis or estimate was prepared as part of this study.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   Participation from other federal or state agencies is unlikely due to the lack of ownership and/or jurisdiction within the corridor. The BLM has not reached out to other agencies to determine interest in participating in WSR management.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   Lands with wilderness characteristics, special designations, or recreation management areas provide a range of uses, benefits, and associated land use restrictions.

   The United States and Montana have agreed to the terms of a compact, settling for all time the United States' federal reserved water rights claims for the Charles M. Russell National Wildlife Refuge. The Charles M. Russell National Wildlife Refuge Reserved Water Rights Compact prevents the construction of new impoundments on the creek and establishes water rights for instream use.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***
   There is some development on nonfederal land in the area. The state and local government could protect the scenic values through land use controls, although some logging and development is occurring.

10. ***The existing support or opposition of designation***
    Neither support for nor opposition to designation has been expressed.

11. *The consistency of designation with other agency plans, programs, and policies in meeting regional objectives*

Inclusion in the National System would be consistent with scenic values and water compact agreements.

12. *The contribution to river system or basin integrity*

Inclusion in the National System would contribute to river system integrity. This is because Armells Creek is a tributary of the Missouri River, between the Upper Missouri River Breaks National Monument and the UL Bend National Wildlife Refuge.

13. *The potential for water resources development*

No potential water resources developments are known to be in the area.

4.1.2 Preliminary Suitability Determination

Segments of Armells Creek, totaling 1.3 miles, are determined preliminarily **not suitable** for inclusion in the National System. They are in the upper reach of the creek in the Judith Mountains. Scenic values along segments of Armells Creek, totaling 1.3 miles, are comparable to those in other drainages within the Judith Mountains. The area holds an array of plant life, wildlife, unique geological features, recreation opportunities, and significant historical and cultural values.

There are other mechanisms to manage the scenic and watershed values, such as through the BLM VRM system, special designations, or recreation management areas. WSR designation is not the best way to manage the values of the segment.

4.2 BLINDHORSE CREEK, FRENCHY GULCH, NORTH FORK BLINDHORSE CREEK, PAMBURN CREEK, RINKER CREEK, AND SOUTH FORK BLINDHORSE CREEK

Blindhorse Creek			
Tentative Classification:	Wild	**ORVs:**	Scenic
Frenchy Gulch			
Tentative Classification:	Wild	**ORVs:**	Scenic
North Fork Blindhorse Creek			
Tentative Classification:	Wild	**ORVs:**	Scenic
Pamburn Creek			
Tentative Classification:	Wild	**ORVs:**	Scenic
Rinker Creek			
Tentative Classification:	Wild	**ORVs:**	Scenic
South Fork Blindhorse Creek			
Tentative Classification:	Wild	**ORVs:**	Scenic

4.2.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***
   The segments are in the Rocky Mountain Front, which is one of Montana's premier landscapes. Massive mountain peaks, benches, and escarpments combine with flowing water and diverse vegetation to form dramatic landscapes. The scenic quality rating is A, which is the BLM's classification for highest scenic quality.

2. ***Current status of landownership and use in the area***
   The segments are in Teton County, along the Rocky Mountain Front, approximately 24 miles northwest of Choteau, Montana. The Blindhorse Creek (0.4 miles) and North Fork Blindhorse Creek (2.3 miles) study segments are contiguous on BLM-administered lands. Blindhorse Creek emerges at the confluence with North Fork Blindhorse Creek; both creeks have their headwaters in the Lewis and Clark National Forest. Blindhorse Creek flows downstream onto private lands before entering the Blackleaf State Wildlife Management Area. Nonmotorized public access is from either the Lewis and Clark National Forest or the Blackleaf State Wildlife Management Area. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment) for Blindhorse Creek, which totals 240 acres, 140 acres (58 percent) are BLM-administered lands and 100 acres (42 percent) are private lands. Within the study area for North Fork Blindhorse Creek, which totals 860 acres, 750 acres (87 percent) are BLM-administered lands, 30 acres (3 percent) are private lands, and 80 acres (10 percent) are National Forest System lands.

   South Fork Blindhorse Creek originates in the Lewis and Clark National Forest, flowing east to the confluence with Blindhorse Creek. About 80 percent of the study segment of the river is on BLM-administered land; the remaining portion is on private land. However, within the study area, which totals 740 acres, 560 acres (76 percent) are BLM-administered lands, 100 acres (14 percent) are private lands, and 80 acres (10 percent) are National Forest System lands. Nonmotorized public access is from the Lewis and Clark National Forest.

   Frenchy Gulch originates in the Lewis and Clark National Forest and flows east onto BLM-administered lands before its confluence with Clark Fork Creek. Pamburn Creek originates on BLM-administered land and flows south to its confluence with the North Fork Teton River on private land. Within the study area, which totals 530 acres, 310 (58 percent) acres are BLM-administered lands, 140 acres (27 percent) are private lands, and 80 acres (15 percent) are National Forest System lands. Nonmotorized public access to both study segments is from the Lewis and Clark National Forest.

   Rinker Creek originates on BLM-administered land and flows east through the Blackleaf State Wildlife Management Area to its confluence with Muddy Creek.

Within the study area, which totals 250 acres, 180 (70 percent) acres are BLM-administered lands and 70 acres (30 percent) are state lands in the wildlife management area. Nonmotorized public access is from either the Lewis and Clark National Forest or the Blackleaf State Wildlife Management Area.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***
   The segments are in the Blind Horse Outstanding Natural Area (ONA). The ONA could be enhanced with the segments' inclusion in the National System but it is not dependent on its inclusion.

   Outside of BLM-administered lands, the area is within the Rocky Mountain Front Conservation Area. The Rocky Mountain Front Conservation Management Area is included in the Rocky Mountain Front Heritage Act, which is a federal legislative proposal. The Rocky Mountain Front Conservation Area Land Protection Plan is a US Fish and Wildlife Service (USFWS) program and is an authorization to protect a unique, highly diverse, and mostly unfragmented ecosystem by acquiring conservation easements in this area. This project helps protect the front from drastic change caused by widespread, unplanned residential or commercial development.

4. ***The federal agency that will administer the area should it be added to the National System***
   If these segments were added to the National System, the BLM in coordination with the Forest Service and the State of Montana would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   Participation from local agencies would not be expected due to the lack of interest, ownership, and/or jurisdiction within the corridors. The State of Montana has not expressed interest in cost-sharing administration of the stream.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   The BLM has expressed interest in acquiring access to the Blind Horse ONA but not in acquiring the land itself.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   Because the segments are in the Rocky Mountain Front Conservation Area, other agencies, particularly the Forest Service, are anticipated to participate in

preserving the river corridor. However, there have been no discussions with other agencies regarding designation.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   The segments are in the Blind Horse ONA, which is managed as visual resource management (VRM) Class I to protect the scenic values. Congress withdrew the area from future fluid mineral leasing and mineral exploration (Public Law 109-432 Sect. 403 [a]). Communication site rights-of-way are also prohibited. While livestock grazing is permitted in the area, rangeland improvements, including infrastructure, must be designed to meet resource objectives. Also, improvements must be mitigated to reduce conflicts with wildlife and the visual character of the area.

   The segments are in the Rocky Mountain Front Conservation Area, where the ecology of the area should be kept intact to preserve a variety of species habitat. This type of conservation would help protect the scenic ORVs.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***
   Because of the goal to protect the Rocky Mountain Front Conservation Area from fragmentation, the scenic ORVs are expected to be protected on nonfederal land. While some of the streams run onto private land, the topography is such that development is unlikely to occur between BLM-administered land and the Blackleaf Wildlife Management Area.

10. ***The existing support or opposition of designation***
    Neither support for nor opposition to designation has been expressed.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***
    Designation would meet the objectives of habitat conservation in the Rocky Mountain Front Conservation Area and Blackleaf Wildlife Management Area. This would be so even though these two areas are not specifically focused on scenic values. Preservation of intact ecosystems would typically maintain or enhance scenic values. Protecting scenic values would typically mean managing landscapes to prevent disturbance, which would incidentally maintain unfragmented ecosystems.

12. ***The contribution to river system or basin integrity***
    Although its inclusion in the National System would not contribute to the integrity of a larger river system, it would still contribute value by protecting headwater integrity.

13. ***The potential for water resources development***
    No potential water resources developments are known to be in the area.

4.2.2 Preliminary Suitability Determinations

Blindhorse Creek, the North and South Forks of Blindhorse Creek, Frenchy Gulch, Pamburn Creek, and Rinker Creek are determined preliminarily **not suitable** for inclusion in the National System. WSR designation is not the best way to manage the values of these segments. This is because of the short distance of the segments on BLM-administered land and other mechanisms to manage the scenic value, as follows:

- Management of the Blind Horse ONA
- Topography that prevents development
- Complementary management of the Blackleaf Wildlife Management Area and Rocky Mountain Front Conservation Area

4.3 COLLAR GULCH CREEK

Tentative Classification: Scenic **ORVs:** Scenic, Fish

4.3.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***

This is a unique habitat for the eastern LFO jurisdiction, with mountain peaks nearby and a high elevation pine/conifer forest. The headwaters of Collar Gulch Creek wrap around the west and south sides of Collar Peak (elevation 6,127 feet). There is no grazing or other infrastructure present except hiking trails. There is a unique opportunity to interact with headwaters for the creek. The entire length of the segment is scenic quality A, which is the BLM's classification for highest scenic quality.

A hiking trail accesses the creek and watershed. There are opportunities for hiking, photographing, and wildlife viewing. Collar Gulch Trail provides a developed hiking recreation opportunity on this segment and in the Judith Mountains area.

The creek contains a pure strain of westslope cutthroat trout (an MFWP state species of special concern and a BLM-designated sensitive species). This is the easternmost population of westslope cutthroat trout, which is one of two subspecies of native cutthroat found in the state. Together, they have been designated Montana's state fish.

2. ***Current status of landownership and use in the area***

There are mostly BLM-administered lands in the area. A portion of the segment contains lands not administered by the BLM on both sides of the creek for approximately 0.7 miles. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 1,030 acres, 920 acres (90 percent) are BLM-administered lands and 110 acres (10 percent) are private lands.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***
   The segment is in the Collar Gulch ACEC. The ACEC could be enhanced with the segment's inclusion in the National System but it is not dependent on its inclusion.

4. ***The federal agency that will administer the area should it be added to the National System***
   If these segments were added to the National System, the BLM would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   While the BLM would administer the segment, it might rely on MFWP for management support due to the presence of westslope cutthroat trout.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   No lands would be acquired. The BLM already administers most of the segment.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   Because the segment contains westslope cutthroat trout, MFWP is expected to participate in preserving the river corridor. However, there have been no discussions with other agencies regarding designation.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   The segment is in the Collar Gulch ACEC. The ACEC was designated to protect westslope cutthroat trout.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***
   Where the segment flows onto private land between two BLM parcels, the terrain would limit development that could affect the scenic ORV.

10. ***The existing support or opposition of designation***
    There is no existing support for or opposition to designation.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***
    Inclusion in the National System would be consistent with protecting ACEC relevant and important values.

12. ***The contribution to river system or basin integrity***
    Although its inclusion in the National System would not contribute to the integrity of a larger river system, it would still contribute value by protecting headwater integrity.

13. ***The potential for water resources development***
    No potential water resources developments are known to be in the area.

4.3.2 Preliminary Suitability Determination

Collar Gulch Creek is determined preliminarily **not suitable** for inclusion in the National System. Because of other mechanisms to manage the values, such as the Collar Gulch ACEC, WSR designation is not the best way to manage the values of the segment.

4.4 CUTROCK CREEK

Tentative Classification: Wild **ORVs:** Scenic

4.4.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***
   The segment is in the Rocky Mountain Front, which is one of Montana's premier landscapes. Massive mountain peaks, benches, and escarpments combine with flowing water and diverse vegetation to form dramatic landscapes. The scenic quality rating is A, which is the BLM's classification for highest scenic quality.

2. ***Current status of landownership and use in the area***
   The Cutrock Creek segment is in Lewis and Clark County, along the Rocky Mountain Front, approximately 30 miles southwest of Choteau, Montana. This segment is a tributary to the North Fork Willow Creek and lies between Sawtooth Ridge to the north and Lime Ridge to the south. The segment length is 1.2 miles, all of which is on BLM-administered land. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 520 acres, 390 acres (75 percent) are BLM-administered lands and 130 acres (25 percent) are private lands.

   No roads access, parallel, or are in the vicinity of the segment. Nonmotorized public access is from either the Lewis and Clark National Forest to the west or the Sun River State Wildlife Management Area that adjoins the parcel to the north.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***
   It is unlikely that recreational use would be curtailed.

   Outside of BLM-administered lands, the area is within the Rocky Mountain Front Conservation Area. The Rocky Mountain Front Conservation Management Area is part of the Rocky Mountain Front Heritage Act, which is a federal legislative proposal. The Rocky Mountain Front Conservation Area Land Protection Plan is a USFWS program to protect a unique, highly diverse, and mostly unfragmented ecosystem by acquiring conservation easements in this area.

4. ***The federal agency that will administer the area should it be added to the National System***
   If this segment were added to the National System, the BLM and/or State of Montana would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   Because the segment is in the Rocky Mountain Front Conservation Area, other agencies are anticipated to participate in the administration of the river corridor. The USFWS administers the Rocky Mountain Front Conservation Area; however, there have been no discussions with other agencies regarding designation.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   Administrative Costs: It is not expected that Wild and Scenic River designation would substantially increase management costs in this river corridor due to the present costs of complying with existing federal laws; however, there is likely to be some increased cost of administering the area, if designated. No detailed cost analysis or estimate was prepared as part of this study.

   Land Acquisition: At this time, it is not expected that the BLM would pursue land acquisition from willing sellers, as most of the area is in public or state ownership.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   Because the segment is in the Rocky Mountain Front Conservation Area, other agencies are anticipated to participate in the administration of the river corridor. The USFWS administers the Rocky Mountain Front Conservation

Area; however, there have been no discussions with other agencies regarding designation.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   The segment is in the Rocky Mountain Front Conservation Area. This project helps protect the front from drastic change caused by widespread, unplanned residential or commercial development.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***
   The topography on private land upstream and downstream of the segment somewhat limits the amount of development that could affect the scenic ORV.

10. ***The existing support or opposition of designation***
    There is no existing support for or opposition to designation.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***
    Designation would meet the objectives of habitat conservation in the Rocky Mountain Front Conservation Area, even though this area is not specifically focused on scenic values. Preservation of intact ecosystems would typically maintain or enhance scenic values. Protecting scenic values would typically mean managing landscapes to prevent disturbance, which would incidentally maintain unfragmented ecosystems.

12. ***The contribution to river system or basin integrity***
    Although the segment's inclusion in the National System would not contribute to the integrity of a larger river system, it would still contribute value by protecting headwater integrity.

13. ***The potential for water resources development***
    There are no projects in the segment, nor does it have the potential to support other projects.

4.4.2 Preliminary Suitability Determination

Cutrock Creek is determined preliminarily **not suitable** for inclusion in the National System. Because of the short distance of the segment on BLM-administered land and other mechanisms to manage the scenic value, WSR designation is not the best way to manage the values of the segment.

4.5 EDWARDS CREEK, NORTH FORK DEEP CREEK

Edwards Creek			
Tentative Classification:	Wild	**ORVs:**	Scenic
North Fork Deep Creek			
Tentative Classification:	Wild	**ORVs:**	Scenic

4.5.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***
   The segments are in the Rocky Mountain Front, which is one of Montana's premier landscapes. Massive mountain peaks, benches, and escarpments combine with flowing water and diverse vegetation to form dramatic landscapes. The scenic quality rating is A, which is the BLM's classification for highest scenic quality.

2. ***Current status of landownership and use in the area***
   Edwards Creek and North Fork Deep Creek are in Teton County, along the Rocky Mountain Front, approximately 24 miles west of Choteau, Montana. Both creeks originate in the Lewis and Clark National Forest. Edwards Creek flows east onto BLM-administered lands before its confluence with South Fork Willow Creek on state land. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 700 acres, 580 acres (83 percent) are BLM-administered lands, 70 acres (9 percent) are private lands, and 50 acres (8 percent) are National Forest System lands.

   North Fork Deep Creek flows east onto BLM-administered land before its confluence with Deep Creek. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 700 acres, 580 acres (83 percent) are BLM-administered lands, 70 acres (9 percent) are private lands, and 50 acres (8 percent) are National Forest System lands.

   Nonmotorized public access to both segments is from the Lewis and Clark National Forest.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***
   The segments are in the Chute Mountain ONA, which could be enhanced with the segments' inclusion in the National Wild and Scenic River System, but it is not dependent on its inclusion.

   Outside of BLM-administered lands, the area is within the Rocky Mountain Front Conservation Area. The Rocky Mountain Front Conservation Management Area is part of the Rocky Mountain Front Heritage Act, which is a federal legislative proposal. The Rocky Mountain Front Conservation Area Land Protection Plan is a USFWS program to protect a unique, highly diverse, and mostly unfragmented ecosystem by acquiring conservation easements in this area. This project helps protect the front from drastic change caused by widespread, unplanned residential or commercial development.

4. ***The federal agency that will administer the area should it be added to the National System***

   If these segments were added to the National System, the BLM and/or State of Montana would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***

   Because the segments are in the Rocky Mountain Front Conservation Area, other agencies are anticipated to participate in the administration of the river corridors. The USFWS administers the Rocky Mountain Front Conservation Area; however, there have been no discussions with other agencies regarding designation.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***

   The BLM has expressed interest in acquiring access to the Chute Mountain ONA but not in acquiring the land itself.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***

   Because the segments are in the Rocky Mountain Front Conservation Area, other agencies are anticipated to participate in preserving the river corridors. However, there have been no discussions with other agencies regarding designation.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***

   The segments are in the Chute Mountain ONA, which is managed as VRM Class I to protect the scenic values. Congress withdrew the area from future fluid mineral leasing and mineral exploration (Public Law 109-432 Sect. 403[a]). Communication site rights-of-way are also prohibited. While livestock grazing is permitted in the area, rangeland improvements, including infrastructure, must be designed to meet resource objectives and must be mitigated to reduce conflicts with wildlife and the visual character of the area.

   The segments are in the Rocky Mountain Front Conservation Area, which is intended to keep intact the ecology of the area to preserve habitat for a variety of species. This type of conservation would help protect the scenic ORVs.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***

   The topography on private land upstream and downstream of the segments somewhat limits the amount of development that could affect the scenic ORV.

10. ***The existing support or opposition of designation***

    Neither support for nor opposition to designation has been expressed.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***

    Designation would meet the objectives of habitat conservation in the Rocky Mountain Front Conservation Area, even though the area is not specifically focused on scenic values. Preserving intact ecosystems would typically maintain or enhance scenic values. Protecting scenic values would typically mean managing landscapes to prevent disturbance, which would incidentally maintain unfragmented ecosystems.

12. ***The contribution to river system or basin integrity***

    Inclusion in the National System would not contribute to river system integrity.

13. ***The potential for water resources development***

    No potential water resources developments are known to be in the area.

4.5.2 Preliminary Suitability Determinations

Edwards Creek and North Fork Deep Creek are determined preliminarily **not suitable** for inclusion in the National Wild and Scenic River System. Because of the short distances of the segments on BLM-administered land and other mechanisms to manage the scenic value (e.g., management of the Chute Mountain ONA and complementary management of the Rocky Mountain Front Conservation Area), WSR designation is not the best way to manage the values of the segment.

4.6 FORDS CREEK

Tentative Classification: Scenic **ORVs:** Scenic

4.6.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***

   The creek originates in high country in the Judith Mountains. The headwaters of Fords Creek are north of Collar Peak (elevation 6,127 feet). It is a tributary of Box Elder Creek. There are approximately eight individual study segments scattered over nearly 40 straight miles; consequently, the creek flows past various landowners. All segments not in the Judith Mountains are affected by ranching, grazing, and agriculture.

This is a unique habitat for the eastern LFO jurisdiction, with mountain peaks nearby and high elevation pine/conifer forest. There is no grazing or other infrastructure present, except hiking trails. There is a unique opportunity to interact with headwaters for the creek. The approximately 1.3-mile study segment in the Judith Mountains is scenic quality A, which is the BLM's classification for highest scenic quality. There are opportunities for hiking, photographing, and wildlife viewing.

2. ***Current status of landownership and use in the area***
   There are private and BLM-administered lands in the area. The approximately 1.3-mile study segment in the Judith Mountains is almost entirely surrounded by BLM-administered land. However, within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 650 acres, 480 acres (74 percent) are BLM-administered lands and 170 acres (26 percent) are private lands.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***
   The approximately 1.3-mile study segment is in the Judith Mountains. The scenery on these lands could be enhanced with the segment's inclusion in the National System; however, this enhancement does not depend on the segment's inclusion.

4. ***The federal agency that will administer the area should it be added to the National System***
   If Fords Creek were added to the National System, the BLM would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   Participation from state or local agencies would not be expected due to the lack of interest, ownership, and/or jurisdiction within the corridors.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   Administrative Costs: It is not expected that Wild and Scenic River designation would substantially increase management costs in this river corridor due to the present costs of complying with existing federal laws; however, there is likely to be some increased cost of administering the area, if designated. No detailed cost analysis or estimate was prepared as part of this study.

   Land Acquisition: At this time, it is not expected that the BLM would pursue land acquisition from willing sellers. Because the majority of the land within the lower segment corridor is privately owned, it would be difficult for the BLM to acquire enough additional land to affect the manageability of the segment. No detailed cost analysis or estimate was prepared as part of this study.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   Participation from other federal or state agencies is unlikely due to the lack of ownership and/or jurisdiction within the corridor.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   To a limited extent, the protection of scenic values via the BLM VRM system can prevent incompatible development.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***
   The topography on private land in the segment study area somewhat limits the amount of development that could affect the scenic ORV.

10. ***The existing support or opposition of designation***
    There is no existing support for or opposition to designation.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***
    Inclusion in the National System would be consistent with protecting wilderness characteristics for the 1.3-mile study segment in the Judith Mountains.

12. ***The contribution to river system or basin integrity***
    Although its inclusion in the National System would not contribute to the integrity of a larger river system, it would still contribute value by protecting headwater integrity for the approximately 1.3-mile study segment in the Judith Mountains.

13. ***The potential for water resources development***
    No potential water resources developments are known to be in the area.

4.6.2 Preliminary Suitability Determination

Fords Creek is determined preliminarily **not suitable** for inclusion in the National System because of other mechanisms to manage the scenic value, such as through the BLM VRM system, special designations, or RMAs. WSR designation is not the best way to manage the values of the segment.

4.7 JUDITH RIVER

Tentative Classification: Scenic **ORVs:** Geologic

4.7.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***

   There are highly scenic white cliffs of Virgelle sandstone in the upper half of the segment. Alternating bands of gray, buff, sandstone, shale, and coal geology are exposed farther downstream toward the Judith River sandstone formation. Badlands-type topography is in the lower half of the segment.

   There are opportunities for fishing, floating, and camping. Float or overland hike-in access is available to small, scattered BLM-administered parcels.

2. ***Current status of landownership and use in the area***

   Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 3,410 acres, 1,760 acres (52 percent) are BLM-administered lands and 1,650 acres (48 percent) are private lands.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***

   The Judith River Special Recreation Management Area is in this area. It is comprised of 10,100 acres of scattered BLM-administered lands straddling a 27-mile stretch of the Judith River. Most recreation in the Special Recreation Management Area is dispersed and occurs either on the river (e.g., boating and fishing) or next to the river (e.g., hunting, camping, and sightseeing).

   There are no BLM-administered travel routes in the Special Recreation Management Area, and the scattered land-locked nature of BLM parcels limits legal public access to the river. In the Special Recreation Management Area, the only opportunity for public access to the river is at Anderson Bridge via Judith River Road. While the bridge and roadway are in a public right-of-way, the properties surrounding the bridge are private, with no public easement opportunities. The Special Recreation Management Area could be enhanced with the segment's inclusion in the National System but it is not dependent on its inclusion.

4. ***The federal agency that will administer the area should it be added to the National System***

   If Judith River were added to the National System, the BLM would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   Participation from state or local agencies would not be expected due to the lack of interest, ownership, and/or jurisdiction within the corridors.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   Administrative Costs: It is not expected that Wild and Scenic River designation would substantially increase management costs in this river corridor due to the present costs of complying with existing federal laws; however, there is likely to be some increased cost of administering the area if designated. No detailed cost analysis or estimate was prepared as part of this study.

   Land Acquisition: At this time, it is not expected that the BLM would pursue land acquisition from willing sellers. Because the majority of the land within the segment corridor is privately owned, it would be difficult for the BLM to acquire enough additional land to affect the manageability of the segment. No detailed cost analysis or estimate was prepared as part of this study.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   Participation from other federal or state agencies is unlikely due to the lack of ownership and/or jurisdiction within the corridor.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   The Judith River Special Recreation Management Area is in this area and involves management that would protect the values.

   The United States and the State of Montana have agreed to the terms of a compact, settling for all time the United States' federal reserved water rights claims for the Upper Missouri River Breaks National Monument. The Upper Missouri River Breaks National Monument Reserved Water Rights Compact prevents the construction of new impoundments on a stretch of the river and establishes water rights for minimum instream flow.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***
   It is unlikely that the state or local governments would authorize an activity that could affect the geologic ORV on nonfederal land.

10. ***The existing support or opposition of designation***
    There is no existing support for or opposition to designation.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***
    Inclusion in the National System would be consistent with the Judith River Special Recreation Management Area and water compact agreements.

12. ***The contribution to river system or basin integrity***
    Inclusion in the National System would not contribute to river system integrity.

13. ***The potential for water resources development***
    No potential water resources developments are known to be in the area.

4.7.2 Preliminary Suitability Determination

The Judith River is determined preliminarily **not suitable** for inclusion in the National System. Because of the mixed landownership pattern resulting in access difficulties and fragmented portions of the segment, WSR designation would not significantly contribute to the protection of geologic values.

4.8 MIDDLE FORK DEARBORN RIVER

Tentative Classification: Recreational **ORVs:** Scenic

4.8.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***
   The segment is in the Rocky Mountain Front, which is one of Montana's premier landscapes. Massive mountain peaks, benches, and escarpments combine with flowing water and diverse vegetation to form dramatic landscapes. The scenic quality rating is A, which is the BLM's classification for highest scenic quality.

2. ***Current status of landownership and use in the area***
   The Middle Fork Dearborn River is in the Rocky Mountain Front, in Lewis and Clark County, within a mile of the Continental Divide at Rogers Pass. The river originates west of Sunset Mountain (elevation 6,539 feet) in the Helena National Forest, a short distance upstream of the BLM segment. It flows north, then east toward its confluence with the Dearborn River. The study segment (1.8 miles) is contiguous with BLM-administered lands, and the relatively small BLM parcel is surrounded by private lands. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 500 acres, 340 acres (67 percent) are BLM-administered lands, 100 acres (20 percent) are private lands, and 60 acres (13 percent) are National Forest System lands. There are no developed public access points, but the segment is readily accessible from State Highway 200, which parallels it.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***
   Potential fishing and sightseeing or wildlife viewing opportunities (no floatboating and land casting only) may be enhanced. It is unlikely that recreational use would be curtailed. BLM-administered lands along this segment are available for logging. Logging could be foreclosed or curtailed within 0.25 miles of the river.

   Outside of BLM-administered lands, the area is within the Rocky Mountain Front Conservation Area. The Rocky Mountain Front Conservation Management Area is part of the Rocky Mountain Front Heritage Act, which is a federal legislative proposal. The Rocky Mountain Front Conservation Area Land Protection Plan is a USFWS program to protect a unique, highly diverse, and mostly unfragmented ecosystem by acquiring conservation easements in this area. This project helps protect the front from drastic change caused by widespread, unplanned residential or commercial development.

4. ***The federal agency that will administer the area should it be added to the National System***
   If Middle Fork of the Dearborn were added to the National System, the BLM would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   While the BLM would administer the river segment, it might rely on the state (or state department of transportation) for management support due to the proximity of State Highway 200 to the segment.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   Administrative Costs: It is not expected that Wild and Scenic River designation would substantially increase management costs in this river corridor due to the present costs of complying with existing federal laws; however, there is likely to be some increased cost of administering the area if designated. No detailed cost analysis or estimate was prepared as part of this study.

   Land Acquisition: At this time, it is not expected that the BLM would pursue land acquisition from willing sellers since most lands are already under public ownership. No detailed cost analysis or estimate was prepared as part of this study.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   Because the segment is in the Rocky Mountain Front Conservation Area, other agencies are anticipated to participate in preserving the river corridor. The USFWS administers the Rocky Mountain Front Conservation Area. However, there have been no discussions with other agencies regarding designation.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   The segment is in the Rocky Mountain Front Conservation Area, which is intended to keep intact the ecology of the area to preserve habitat for a variety of species. This type of conservation would help protect the scenic ORVs.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***
   There is some development in the study area on nonfederal lands. However, because of the steep slopes on both sides of the segment, some additional development could still occur without impacting the scenic ORV on BLM-administered lands.

10. ***The existing support or opposition of designation***
    There is no existing support for or opposition to designation.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***
    Designation would meet the objectives of habitat conservation in the Rocky Mountain Front Conservation Area, even though this area is not specifically focused on scenic values. Preservation of intact ecosystems would typically maintain or enhance scenic values. Protecting scenic values would typically mean managing landscapes to prevent disturbance, which would incidentally maintain unfragmented ecosystems.

12. ***The contribution to river system or basin integrity***
    Although its inclusion in the National System would not contribute to the integrity of a larger river system, it would still contribute value by protecting headwater integrity.

13. ***The potential for water resources development***
    There is a graveled instream river crossing for vehicular access to logging on the south side of the river. The river could be used in logging operations, including as a water source for dust-control trucks. No other projects exist in the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment) or upstream or downstream of the study area, nor does the stream have the potential to support other projects.

4.8.2 Preliminary Suitability Determination

The Middle Fork Dearborn River is determined preliminarily **not suitable** for inclusion in the National System. Because of the short distance of the segment on BLM-administered land and other mechanisms to manage the scenic value, WSR designation is not the best way to manage the values of the segment.

4.9 MISSOURI RIVER

Tentative Classification: Recreational **ORVs:** Scenic, Recreational, Historic

4.9.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***

   The clear, clean water of the river, the variety of rich colors in the riparian zone, and the mixture of timbered canyon walls and prominent massive rock outcrops all combine to provide outstandingly remarkable scenery.

   The segment provides outstanding recreation opportunities that attract visitors from outside the state. Opportunities include floatboating, fishing, and wildlife viewing. MFWP rated this portion of the Missouri River as an "outstanding fisheries resource value." This segment produces some of the highest number of trout caught per mile on the most angler days of any portion of the Missouri River. The segment is in the corridor of the Lewis and Clark National Historic Trail. A portion of the Missouri River from Fort Benton to the James Kipp Recreation Area was designated as a Wild and Scenic River in 1976 (Public Law 94-486).

2. ***Current status of landownership and use in the area***

   The segment is in Lewis and Clark and Cascade Counties, southwest of Great Falls, Montana. It is composed of seven separate BLM parcels that vary in size from 320 acres to less than 10 acres. Public access is from US Interstate 15 and numerous county roads. Of the 110-mile stretch, only 4.7 miles (4 percent) are on BLM-administered land. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 2,040 acres, 420 acres (21 percent) are BLM-administered lands, 1,590 acres (78 percent) are private lands, and 30 acres (1 percent) are state lands.

   There are several public access points with boat launches and parking areas. Some of the access points also have campsites with grills and other facilities.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***

   Recreational floatboating and opportunities for learning about and experiencing the Lewis and Clark Expedition might be enhanced, but infrastructure already exists to provide these opportunities. It is unlikely that much use would be curtailed.

4. ***The federal agency that will administer the area should it be added to the National System***
   If the Missouri River were added to the National System, the State of Montana would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   While the BLM could do some administration, it would rely heavily on the State of Montana for continued management support.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   There is too much private land to make acquisition feasible. Given the existing easements maintained by the State, it is unlikely that additional lands would be needed to adequately manage the ORVs.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   Participation from other federal or state agencies is unlikely due to the lack of ownership and/or jurisdiction within the corridor.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   There are several housing developments along the segment, particularly where the stretch flattens out into a prairie stream, between Cascade and Great Falls. Except where they are precluded due to topography, land use controls could not prevent development incompatible with the scenic ORV on land not administered by the BLM. The State's management of river access for fishing and other recreation helps to maintain the recreational ORV.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***
   The State already maintains public access to the river for recreation (fishing and floatboating). There is already a significant amount of development on land not administered by the BLM, so there is no scenic value on such land.

10. ***The existing support or opposition of designation***
    Neither support for nor opposition to designation has been expressed.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***
    The river is in the designated Lewis and Clark National Historic Trail corridor. For this reason, WSR designation would be consistent with the National Historic Trails designation, although both designations are probably unnecessary to protect the historic value. Designation would also be consistent with current management as an outstanding trout fishery. The river downstream of Fort Benton is designated as a Wild and Scenic River.

12. ***The contribution to river system or basin integrity***
    The segment does not significantly contribute to the river system.

13. ***The potential for water resources development***
    The study segment between Holter Dam and Great Falls has an instream flow water reserve to protect the fishery. Flows through the area are regulated by releases at Holter Dam, which fills approximately every 21 days. Downstream of the study segment, the Missouri River is designated as a Wild and Scenic River. The stretch of river from Fort Benton to Fred Robinson Bridge has an appropriated instream flow (85-20-501 MCA). No new water developments with currently unappropriated water rights can impact the decreed instream flows; for this reason, no new developments in the study segment are expected.

4.9.2 Preliminary Suitability Determination

The preliminary suitability determination for the Missouri River is **not suitable**. The BLM could not adequately manage for the ORVs without significant assistance from other agencies. An example is the State of Montana, which already assumes much responsibility for fishing access along the segment. This management is providing sufficient protection of the recreational ORV. Only a small portion of the river segment crosses BLM-administered land.

4.10 NORTH FORK FLATWILLOW CREEK, SOUTH FORK FLATWILLOW CREEK

North Fork Flatwillow			
Tentative Classification:	Scenic	**ORVs:**	Scenic
South Fork Flatwillow:			
Tentative Classification:	Scenic	**ORVs:**	Scenic

4.10.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***
   The segments have a scenic quality rating of A.

2. ***Current status of landownership and use in the area***
   Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment) of North Fork Flatwillow Creek, which totals 210

acres, 50 acres (25 percent) are BLM-administered lands and 160 acres (75 percent) are private lands. Within the study area of South Fork Flatwillow Creek, which totals 670 acres, 270 acres (41 percent) are BLM-administered lands and 400 acres (59 percent) are private lands. Most of the waterfront is private land.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***
   No potential uses are known that would be affected.

4. ***The federal agency that will administer the area should it be added to the National System***
   If these segments were added to the National System, the BLM would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   Participation from state or local agencies would not be expected due to the lack of interest, ownership, and/or jurisdiction within the corridors.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   Administrative Costs: It is not expected that Wild and Scenic River designation would substantially increase management costs in these river corridors due to the present costs of complying with existing federal laws; however, there is likely to be some increased cost of administering the areas, if designated. No detailed cost analysis or estimate was prepared as part of this study.

   Land Acquisition: At this time, it is not expected that the BLM would pursue land acquisition from willing sellers. Because the majority of the land within the segment corridors is privately owned, it would be difficult for the BLM to acquire enough additional land to affect the manageability of the segments. No detailed cost analysis or estimate was prepared as part of this study.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   Participation from other federal or state agencies is unlikely due the lack of ownership and/or jurisdiction within the corridors.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   There are no known land use controls.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***
   Livestock grazing is the primary use on nonfederal land in the study area of both segments and is unlikely to impact the scenic ORV.

10. ***The existing support or opposition of designation***
   There is no existing support for or opposition to designation.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***
   There are no known inconsistencies.

12. ***The contribution to river system or basin integrity***
   Inclusion in the National System would not contribute to the river system's integrity.

13. ***The potential for water resources development***
   No potential water resources developments are known to be in the area.

4.10.2 Preliminary Suitability Determinations

North Fork Flatwillow Creek is determined preliminarily **not suitable** for inclusion in the National System. Because of the short distance of the segment on BLM-administered land and other mechanisms to manage the scenic value, WSR designation is not the best way to manage the values of the segment.

South Fork Flatwillow Creek is determined preliminarily **not suitable** for inclusion in the National System. Because of the short distance of the segment on BLM-administered land and other mechanisms to manage the scenic value, WSR designation is not the best way to manage the values of the segment.

4.11 NORTH FORK SHEEP CREEK, NORTH FORK STICKNEY CREEK, SOUTH FORK SHEEP CREEK, SOUTH FORK STICKNEY CREEK

North Fork Sheep Creek			
Tentative Classification:	Scenic	**ORVs:**	Scenic
North Fork Stickney Creek			
Tentative Classification:	Scenic	**ORVs:**	Scenic
South Fork Sheep Creek			
Tentative Classification:	Scenic	**ORVs:**	Scenic
South Fork Stickney Creek			
Tentative Classification:	Scenic	**ORVs:**	Scenic

4.11.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***

   The segments originate and flow through an area of faults known as Devils Kitchen. The combination of massive outcrops, deeply incised canyons, coniferous timber, and flowing water produces outstanding scenery. The scenic quality rating is A, which is the BLM's classification for most valued scenery.

2. ***Current status of landownership and use in the area***

   The segments are in Cascade County, in an area known as Devils Kitchen, approximately 40 miles southwest of Great Falls, Montana. North Fork Sheep Creek originates on private land and flows northwest through two BLM-administered parcels before its confluence with Sheep Creek. The total segment length is 2.4 miles, from the point of origin to its confluence with Sheep Creek. Approximately 1.5 miles are on BLM-administered land within two separate parcels. The remaining length is on private surface. BLM-administered land follows a checkerboard pattern in this area. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 720 acres, 400 acres (56 percent) are BLM-administered lands and 320 acres (44 percent) are private lands.

   South Fork Sheep Creek originates on private land and flows northwest through five separate BLM parcels before its confluence with Sheep Creek. The total segment length is 5.8 miles, from its point of origin to confluence with Sheep Creek. Approximately 4.1 miles are on BLM-administered land. The remaining length is on private surface. BLM-administered land follows a checkerboard pattern in this area. Within the study area, which totals 1,530 acres, 1,050 acres (68 percent) are BLM-administered lands and 480 acres (32 percent) are private lands.

   North Fork Stickney Creek originates on private land and flows west through two separate BLM-administered parcels before its confluence with Stickney Creek. The total segment length is 2.5 miles, from the point of its origin to confluence with Stickney Creek. Approximately 2 miles are on BLM-administered land. The remaining length is in private surface. BLM-administered land follows a checkerboard pattern in this area. Within the study area, which totals 890 acres, 650 acres (73 percent) are BLM-administered lands and 240 acres (27 percent) are private lands.

   South Fork Stickney Creek originates on private land and flows west through a BLM-administered parcel before its confluence with Stickney Creek. The total segment length is 1.5 miles, from the point of its origin to confluence with Stickney Creek. Approximately 1.2 miles are on one contiguous stretch of BLM-administered land. The remaining length is on private surface. BLM-administered land follows a checkerboard pattern in this area. Within the study area, which totals 450 acres, 320 acres (71 percent) are BLM-administered lands, 60 acres (13 percent) are private lands, and 70 acres (16 percent) are state lands.

There is no public access to any of the segments.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***
   Livestock grazing is evidenced by significant trails that cross and parallel the streams in some areas. Livestock grazing use could be foreclosed or curtailed within 0.25 miles of the streams. There is no public access to this area, so no recreation would be enhanced or curtailed by designation.

4. ***The federal agency that will administer the area should it be added to the National System***
   If these segments were added to the National System, the BLM would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   Participation from state or local agencies would not be expected due to the lack of interest, ownership, and/or jurisdiction within the corridors.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   Administrative Costs: It is not expected that Wild and Scenic River designation would substantially increase management costs in these river corridors due to the present costs of complying with existing federal laws; however, there is likely to be some increased cost of administering the area, if designated. No detailed cost analysis or estimate was prepared as part of this study.

   Land Acquisition: At this time, it is not expected that the BLM would pursue land acquisition from willing sellers. Landownerships within the segment corridors are checkerboarded; it would be difficult for the BLM to consolidate lands sufficiently to affect the manageability of the segments. No detailed cost analysis or estimate was prepared as part of this study.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   Participation from other federal or state agencies is unlikely due to the lack of ownership and/or jurisdiction within the corridors.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   Cascade County identifies the area as zoned for agricultural use. While the primary use of the land is for agricultural purposes, other facilities and those associated with agricultural use could be developed in the area. It is likely that topography would prevent large structures that would obstruct the scenic value.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***
   Federal lands in this area follow a checkerboard pattern, making access to some lands impossible without access easements on surrounding private lands. Therefore, the federal capacity to manage these segments would be potentially low if easements were not granted.

10. ***The existing support or opposition of designation***
    Neither support for nor opposition to designation has been expressed.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***
    There are no other plans, programs, or policies on federal lands in this area.

12. ***The contribution to river system or basin integrity***
    There is a significant contribution of the headwaters streams with intact riparian ecosystem.

13. ***The potential for water resources development***
    Water resources development includes passive use by livestock, including a potential water trough, well, and other development relating to livestock use.

4.11.2 Preliminary Suitability Determinations

North Fork Sheep Creek is determined preliminarily **not suitable** for inclusion in the National System. WSR designation is not the best way to manage the values of the segment. This is because of the short distance of the segment on BLM-administered land and potentially difficult to infeasible manageability due to landownership pattern.

South Fork Sheep Creek is determined preliminarily **not suitable** for inclusion in the National System. WSR designation is not the best way to manage the values of the segment. This is because of the short distance of the segment on BLM-administered land and potentially difficult to infeasible manageability due to landownership pattern.

North Fork Stickney Creek is determined preliminarily **not suitable** for inclusion in the National System. WSR designation is not the best way to manage the values of the segment. This is because of the short distance of the segment on BLM-administered land and potentially difficult to infeasible manageability due to landownership pattern.

South Fork Stickney Creek is determined preliminarily **not suitable** for inclusion in the National System. WSR designation is not the best way to manage the values of the segment. This is because of the short distance of the segment on BLM-administered land and potentially difficult to infeasible manageability due to landownership pattern.

4.12 NORTH FORK TETON RIVER

Tentative Classification: Recreational **ORVs:** Scenic, Fish

4.12.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***

The segment is in the Rocky Mountain Front, which is one of Montana's premier landscapes. Massive mountain peaks, benches, and escarpments combine with flowing water and diverse vegetation to form dramatic landscapes. The scenic quality rating is A, which is the BLM's classification for highest scenic quality.

The North Fork Teton River supports habitat for westslope cutthroat trout. The USFWS does not list the westslope cutthroat trout under the Endangered Species Act. Nevertheless, both the BLM and USFWS list it as a sensitive species, and the State of Montana has designated it a Fish of Special Concern.

The westslope cutthroat trout is one of two native cutthroats in Montana and is co-designated with the Yellowstone cutthroat trout as the state fish. The historical range of the westslope cutthroat trout is western Montana and the upper Missouri River drainage. Westslope cutthroat trout have been reduced in numbers because of the habitat degradation and hybridization with other nonnative fish. Habitat loss and alternation is always the number one problem encountered with native fish. Westslope cutthroat trout cannot compete with nonnative trout where habitat is limited. Brook trout will rule a stream once they have been allowed access. Westslope cutthroat trout hybridize with the introduced rainbow trout, which reduces the purity of the stock. Westslope cutthroat trout are now limited to the upper reaches of small perennial headwater streams.

The Teton River drainage is an unproductive stream with low densities of westslope cutthroat trout. Floods have severely affected most of the habitat in the drainage, and many reaches are subjected to severe icing in winter. There is limited opportunity in this drainage for westslope cutthroat trout recovery (Tews et al. 2000). Inventories have not been conducted on the segment of the North Fork Teton River that crosses BLM-administered land.

2. ***Current status of landownership and use in the area***

The North Fork Teton River segment is in the Rocky Mountain Front in Teton County, approximately 24 miles west of Choteau, Montana. The North Fork

Teton River originates in the Lewis and Clark National Forest and flows east through an 80-acre BLM-administered parcel before entering the Teton River. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 220 acres, 70 acres (33 percent) are BLM-administered lands, 140 acres (63 percent) are private lands, and 10 acres (4 percent) are National Forest System lands. Public access is from Teton Canyon Road.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***
   Protection for the westslope cutthroat trout could be enhanced if the river were included in the National System.

   Outside of BLM-administered lands, the area is within the Rocky Mountain Front Conservation Area. The Rocky Mountain Front Conservation Management Area is part of the Rocky Mountain Front Heritage Act, which is a federal legislative proposal. The Rocky Mountain Front Conservation Area Land Protection Plan is a USFWS program to protect a unique, highly diverse, and mostly unfragmented ecosystem by acquiring conservation easements in this area. This project helps protect the front from drastic change caused by widespread, unplanned residential or commercial development.

4. ***The federal agency that will administer the area should it be added to the National System***
   If the North Fork of the Teton River were added to the National System, the BLM and/or the Forest Service would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   Participation from local agencies would not be expected due to the lack of interest, ownership, and/or jurisdiction within the corridor. The State of Montana would be an essential partner in the administration of this segment.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   Administrative Costs: It is not expected that Wild and Scenic River designation would substantially increase management costs in this river corridor due to the present costs of complying with existing federal laws; however, there is likely to be some increased cost of administering the area if designated. No detailed cost analysis or estimate was prepared as part of this study.

   Land Acquisition: At this time, it is not expected that the BLM would pursue land acquisition from willing sellers. Because the majority of the land within the segment corridor is non-BLM-administered land, it would be difficult for the

BLM to acquire enough additional land to affect the manageability of the segment. No detailed cost analysis or estimate was prepared as part of this study.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   The segment is in the Rocky Mountain Front Conservation Area and the segment contains westslope cutthroat trout. Because of this, other agencies are anticipated to participate in preserving the river corridor. However, there have been no discussions with other agencies regarding designation.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   The segment is in the Rocky Mountain Front Conservation Area, which seeks to keep intact the ecology of the area to preserve habitat for a variety of species. This type of conservation would help protect the scenic ORVs.

   The BLM is a signatory to the 2007 memorandum of understanding and conservation agreement for westslope cutthroat trout and Yellowstone cutthroat trout in Montana. Other signatories include other federal and state agencies, tribal governments, and organizations. The memorandum of understanding was developed to expedite implementation of conservation measures for westslope and Yellowstone cutthroat trout throughout their respective historical ranges in Montana.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***
   The topography on private lands in the segment study area somewhat limits the amount of development that could affect the scenic ORV.

10. ***The existing support or opposition of designation***
    Neither support for nor opposition to designation has been expressed.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***
    Designation would meet the objectives of habitat conservation in the Rocky Mountain Front Conservation Area, even though the area is not specifically focused on scenic values. Preservation of intact ecosystems would typically maintain or enhance scenic values. Protecting scenic values would typically mean managing landscapes to prevent disturbance and would incidentally maintain unfragmented ecosystems.

    Designation would also be consistent with the multiagency effort to protect westslope cutthroat trout habitat. However, the major threats in this area are from nonnative species (brook trout); thus, designation would not necessarily provide a mechanism to deal with the threat above those already in place.

12. ***The contribution to river system or basin integrity***
    Inclusion in the National System would not contribute to the river system's integrity.

13. ***The potential for water resources development***
    No potential water resources developments are known to be in the area.

4.12.2 Preliminary Suitability Determination

North Fork Teton River is determined preliminarily **not suitable** for inclusion in the National System. Because of the short distance of the segment on BLM-administered land (0.3 miles) and other mechanisms to manage the scenic value, WSR designation is not the best way to manage the values of the segment.

4.13 PIKE CREEK

Tentative Classification: Recreational **ORVs:** Fish

4.13.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***
   Pike Creek flows from west to east and is a tributary of Flatwillow Creek. It contains the northern redbelly x finescale dace hybrid. This is a Montana fish species of special concern (S3; Montana Field Guide 2014) and a BLM sensitive species.

2. ***Current status of landownership and use in the area***
   Multiple portions of the segment contain BLM-administered lands on both sides of the creek. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 3,290 acres, 2,260 acres (69 percent) are BLM-administered lands, 890 acres (27 percent) are private lands, and 140 acres (4 percent) are state lands. Most of the land next to the creek is used for livestock grazing.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***
   Threats to the species are intensive agriculture, overgrazing, road crossings, dams, and exotic species, particularly northern pike (Montana Chapter of the American Fisheries Society 2012). On BLM-administered land, if designated, livestock grazing could be modified or removed if it were determined to be impacting the species.

4. ***The federal agency that will administer the area should it be added to the National System***

   If Pike Creek were added to the National System, the BLM would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***

   While the BLM would administer the segment, it might rely on MFWP for management support due to the presence of northern redbelly x finescale dace hybrid.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***

   Administrative Costs: It is not expected that Wild and Scenic River designation would substantially increase management costs in this river corridor due to the present costs of complying with existing federal laws; however, there is likely to be some increased cost of administering the area, if designated. No detailed cost analysis or estimate was prepared as part of this study.

   Land Acquisition: At this time, it is not expected that the BLM would pursue land acquisition from willing sellers. The majority of the land within the segment corridor is BLM-administered land; it wouldn't be necessary for the BLM to acquire additional land to enhance the manageability of the segment. No detailed cost analysis or estimate was prepared as part of this study.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***

   Because the segment contains the northern redbelly x finescale dace hybrid, it is anticipated that MFWP would participate in preserving the river corridor. However, there have been no discussions with other agencies regarding designation.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***

   There are no known land use controls.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***

   The state could implement projects to benefit the fish populations and habitat on nonfederal land. The use on nonfederal land is primarily livestock grazing and agriculture. These activities can cause sedimentation and runoff that can impair fish habitat. However, Pike Creek is not on Montana's 305(b) list of impaired waters (EPA 2014).

10. ***The existing support or opposition of designation***
    There is no existing support for or opposition to designation.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***
    Inclusion in the National System would provide protection consistent with the goals of the BLM and Montana for protecting sensitive species from becoming candidates for listing under the Endangered Species Act.

12. ***The contribution to river system or basin integrity***
    Inclusion in the National System would not contribute to river system integrity.

13. ***The potential for water resources development***
    No potential water resources developments are known to be in the area.

4.13.2 Preliminary Suitability Determination

Pike Creek is determined preliminarily **not suitable** for inclusion in the National System. The northern redbelly x finescale dace hybrid is a Montana fish species of special concern and a BLM sensitive species. Due to the limited distribution and knowledge of this species, it is important to reduce impacts to their known habitat. Land use controls can be implemented as a mechanism to manage fish habitat. WSR designation is not the best way to manage the values of the segment.

4.14 SACAGAWEA RIVER (ALSO KNOWN AS CROOKED CREEK)

Tentative Classification: Scenic **ORVs:** Fish

4.14.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***
   The Sacagawea River flows from west to east and is a tributary of the Musselshell River, just before the Musselshell River joins the Missouri River. The Sacagawea River meanders dramatically, and its lower portion is confined on both sides by higher ground. The Sacagawea River provides good habitat for prairie fish. There are a limited number of access points to the river.

2. ***Current status of landownership and use in the area***
   Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 9,760 acres, 7,100 acres (73 percent) are BLM-administered lands, 80 acres (less than 1 percent) are USFWS-administered lands, 2,490 acres (26 percent) are private lands, and 90 acres (1 percent) are state lands. Portions of the segment contain BLM-administered lands on both sides of the river.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***

   In this area are the Thompson Coulee, Horse Camp Trail, West Crooked Creek, Chain Buttes, and Spear Coulee lands with wilderness characteristics units. These lands could be enhanced with the segment's inclusion in the National System, but they are not dependent on its inclusion.

4. ***The federal agency that will administer the area should it be added to the National System***

   If Sacagawea River were added to the National System, the BLM would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***

   While the BLM would administer the segment, it might rely on MFWP for management support due to the presence of prairie fish.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***

   Administrative Costs: It is not expected that Wild and Scenic River designation would substantially increase management costs in this river corridor due to the present costs of complying with existing federal laws; however, there is likely to be some increased cost of administering the area if designated. No detailed cost analysis or estimate was prepared as part of this study.

   Land Acquisition: At this time, it is not expected that the BLM would pursue land acquisition from willing sellers. The majority of the land within the lower segment of the corridor is BLM-administered land; it wouldn't be necessary for the BLM to acquire additional land to enhance the manageability of the lower portion of the segment. The majority of the land within the upper portion of the segment corridor is non-BLM-administered land. It would be difficult for the BLM to acquire enough additional land to affect the manageability of the area. No detailed cost analysis or estimate was prepared as part of this study.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***

   Because the segment contains prairie fish, it is anticipated that MFWP would participate in preserving the river corridor. However, there have been no discussions with other agencies regarding designation.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***

   The segment is in four lands with wilderness characteristics units. Lands with wilderness characteristics provide a range of uses and benefits, in addition to their value as settings for solitude or primitive and unconfined recreation.

   The United States and the State of Montana have agreed to the terms of a compact, settling for all time the United States' federal reserved water rights claims for the Charles M. Russell National Wildlife Refuge. The Charles M. Russell National Wildlife Refuge Reserved Water Rights Compact prevents the construction of new impoundments on the river and establishes water rights for instream use.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***

   The presence of the ORV would not rely on management from the state or local governments.

10. ***The existing support or opposition of designation***

    There is no existing support for or opposition to designation.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***

    Inclusion in the National System would be consistent with protecting wilderness characteristics and water compact agreements.

12. ***The contribution to river system or basin integrity***

    Due to the segment's length, its inclusion in the National System would contribute to river system integrity. There are many individual segments over 40 straight miles, and they are concentrated in three areas: headwaters, near the confluence with Antelope and Little Crooked Creeks, and near the Musselshell River confluence.

13. ***The potential for water resources development***

    No potential water resources developments are known to be in the area.

4.14.2 Preliminary Suitability Determination

The Sacagawea River is determined preliminarily **not suitable** for inclusion in the National System. Because of other mechanisms to manage the fish value, WSR designation is not the best way to manage the values of the segment.

4.15 SOUTH FORK DEEP CREEK

Tentative Classification: Scenic **ORVs:** Scenic, Fish

4.15.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***

   The segment is in the Rocky Mountain Front, which is one of Montana's premier landscapes. Massive mountain peaks, benches, and escarpments combine with flowing water and diverse vegetation to form dramatic landscapes. The scenic quality rating is A, which is the BLM's classification for highest scenic quality.

   South Fork Deep Creek supports a genetically pure population of westslope cutthroat trout. Although the USFWS does not list this species under the Endangered Species Act, both that agency and the BLM list it as a sensitive species, and the State of Montana has designated it a Fish of Special Concern.

   The westslope cutthroat trout is one of two native cutthroats in Montana and is co-designated with the Yellowstone cutthroat trout as the state fish. The historical range of the westslope cutthroat trout is western Montana and the upper Missouri River drainage.

   Westslope cutthroat trout have been reduced in numbers because of the habitat degradation and hybridization with other nonnative fish. Habitat loss and alternation is always the number one problem encountered with native fish. Westslope cutthroat trout cannot compete with nonnative trout where habitat is limited. Brook trout will rule a stream once they have been allowed access. Westslope cutthroat trout hybridize with the introduced rainbow trout which reduces the purity of the stock. Westslope cutthroat trout are now limited to the upper reaches of small perennial headwater streams.

   The Teton River drainage, which includes South Fork Deep Creek, is an unproductive stream with low densities of westslope cutthroat trout. Floods have severely affected most of the habitat in the drainage, and many reaches are subjected to severe icing conditions in winter. There is limited opportunity in this drainage for westslope cutthroat trout recovery.

   Furthermore, inventories of South Fork Deep Creek were conducted from the headwaters in the Lewis and Clark National Forest to and including a small portion of BLM-administered land. These inventories showed that the creek is fishless, although the stream was identified as a potential introduction site (Tews et al. 2000). However, a 2011 survey of a short segment of the stream showed fish in the reach (MFWP 2014).

2. ***Current status of landownership and use in the area***
   South Fork Deep Creek segment is in Teton County, along the Rocky Mountain Front, approximately 24 miles west of Choteau, Montana. South Fork Deep Creek originates in the Lewis and Clark National Forest and flows east on BLM-administered land before its confluence with Deep Creek. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 690 acres, 540 acres (78 percent) are BLM-administered lands, 30 acres (5 percent) are private lands, 55 acres (8 percent) are state lands, and 65 acres (9 percent) are National Forest System lands. Public access is nonmotorized from the Lewis and Clark National Forest.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***
   The segment is in the Deep Creek/Battle Creek ONA, which could be enhanced with the segment's inclusion in the National System, but it is not dependent on its inclusion.

   Outside of BLM-administered lands, the area is within the Rocky Mountain Front Conservation Area. The Rocky Mountain Front Conservation Management Area is part of the Rocky Mountain Front Heritage Act, which is a federal legislative proposal. The Rocky Mountain Front Conservation Area Land Protection Plan is a USFWS program to protect a unique, highly diverse, and mostly unfragmented ecosystem by acquiring conservation easements in this area. The project helps protect the front from drastic change caused by widespread, unplanned residential or commercial development.

4. ***The federal agency that will administer the area should it be added to the National System***
   If South Fork Deep Creek were added to the National System, the BLM, Forest Service, and/or State of Montana would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   Participation from local agencies would not be expected due to the lack of interest, ownership, and/or jurisdiction within the corridors. The State of Montana would be an essential partner in the administration of this segment.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   The BLM has expressed interest in acquiring access to the Deep Creek/Battle Creek ONA but not in acquiring the land itself.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   Because the segment is in the Rocky Mountain Front Conservation Area, other agencies are anticipated to participate in preserving the river corridor. However, there have been no discussions with other agencies regarding designation.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   The segment is in the Deep Creek/Battle Creek ONA, which is managed as VRM Class I to protect the scenic values. Congress withdrew the area from future fluid mineral leasing and mineral exploration (Public Law 109-432 Sect. 403[a]); communication site rights-of-way are also prohibited. While livestock grazing is permitted in the area, rangeland improvements, including infrastructure, must be designed to meet resource objectives. The improvements must be mitigated to reduce conflicts with wildlife and the visual character of the area.

   The segment is in the Rocky Mountain Front Conservation Area, which is intended to keep intact the ecology of the area to preserve habitat for a variety of species. This type of conservation would help protect the scenic ORVs.

   The BLM is a signatory on the 2007 memorandum of understanding and conservation agreement for westslope cutthroat trout and Yellowstone cutthroat trout in Montana. Other signatories are other federal and state agencies, tribal governments, and organizations. The memorandum of understanding was developed to expedite implementation of conservation measures for westslope and Yellowstone cutthroat trout throughout their respective historical ranges in Montana.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***
   The topography on the private segment of the study area somewhat limits the amount of development that could affect the scenic ORV.

10. ***The existing support or opposition of designation***
    Neither support for nor opposition to designation has been expressed.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***
    Designation would meet the objectives of habitat conservation in the Rocky Mountain Front Conservation Area, even though the area is not specifically focused on scenic values. Preserving intact ecosystems would typically maintain or enhance scenic values. Protecting scenic values would typically mean managing landscapes to prevent disturbance, which would incidentally maintain unfragmented ecosystems.

Designation would also be consistent with the multiagency effort to protect westslope cutthroat trout habitat. However, the major threats in this area are from nonnative species (brook trout); thus, designation would not necessarily provide a mechanism to deal with the threat above those already in place.

12. ***The contribution to river system or basin integrity***
    The segment does not significantly contribute to the river system.

13. ***The potential for water resources development***
    There is a year-round instream water reserve for South Fork Deep Creek to protect habitat for westslope cutthroat trout and game fisheries. No water developments are anticipated.

4.15.2 Preliminary Suitability Determination

South Fork Deep Creek is determined preliminarily **not suitable** for inclusion in the National System. The segment goes only a short distance on BLM-administered land (1.8 miles). Also, there are other mechanisms to manage the ORVs, such as management of the Deep Creek/Battle Creek ONA, instream flows for fish, and goals of the Rocky Mountain Front Conservation Area. Because of these factors, WSR designation is not the best way to manage the values of the segment.

4.16 SUN RIVER SEGMENT 1

Tentative Classification: Recreational **ORVs:** Scenic, Recreation, Fish, Cultural

4.16.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***
   This segment is in the Rocky Mountain Front, which is one of Montana's premier landscapes. Massive mountain peaks, benches, and escarpments combine with flowing water and diverse vegetation to form dramatic landscapes. The scenic quality rating is A, which is the BLM's classification for highest scenic quality.

   The Sun River attracts recreational users from outside Montana. Recreation opportunities are outstanding for fishing, floating, sightseeing, and observing wildlife. Anglers can fish for brown trout, rainbow trout, and mountain whitefish. Visitors can view the dramatic Rocky Mountain Front landscape and have opportunities to see grizzly bears.

   Fluvial arctic grayling were introduced into the Sun River system as decreed in a Candidate Conservation Agreement. The BLM manages small portions of the Sun River below Diversion Dam.

Fluvial arctic grayling are found in this segment, but the species does not constitute a distinct population. Because of this, the USFWS has withdrawn the fluvial arctic grayling of the upper Missouri River system from the list of candidate species it is considering for protection. However, the BLM still considers this species sensitive. Montana has the only remaining population of arctic grayling in North America, outside of Canada and Alaska.

This segment has a high density of unrecorded cultural sites related to occupation and use by the Blackfoot Nation. These sites are likely regionally important, if not nationally, for interpreting the occupation and use of the Blackfeet people in the Sun River Valley. The valley was an important gathering site for various bands of the Blackfoot Nation to reconnect and procure resources unavailable in the prairie. The area contained many, if not most, of the Sundance sites, supporting its importance as a gathering place. Camps were situated along the river because of the presence of rare paint sources, medicines, and medicinal springs. Expanding the cultural significance of the area, the Salish and Kutenai people also occupied it, until the Blackfoot Nation ousted them.

2. ***Current status of landownership and use in the area***
   The segment forms part of the boundary between Teton and Lewis and Clark Counties, near the Rocky Mountain Front. The segment is approximately 24 miles southwest of Choteau, Montana. The Sun River originates in the Lewis and Clark National Forest, flowing east to its confluence with the Missouri River. Public access to the segment is from Sun Canyon Road.

   The Sun River flows through two separate BLM parcels in Segment 1. The total segment length is 3.7 miles, from the end of the upriver parcel to the end of the downriver parcel. Approximately 1.7 miles are on BLM-administered land in the two parcels. The remaining length is on private surface. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 940 acres, 440 acres (47 percent) are BLM-administered lands, 280 acres (30 percent) are private lands, 150 acres (16 percent) are state lands, and 70 acres (7 percent) are National Forest System lands.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***
   Recreational opportunities are fishing, floating, sightseeing, and wildlife viewing; these activities could be enhanced.

   Outside of BLM-administered lands, the area is within the Rocky Mountain Front Conservation Area. The Rocky Mountain Front Conservation Management Area is part of the Rocky Mountain Front Heritage Act, which is a federal legislative proposal. The Rocky Mountain Front Conservation Area Land Protection Plan is a USFWS program to protect a unique, highly diverse, and mostly unfragmented ecosystem by acquiring conservation easements in this area. This project helps protect the front from drastic change caused by widespread, unplanned residential or commercial development.

4. ***The federal agency that will administer the area should it be added to the National System***
   If Sun River Segment 1 were added to the National System, the BLM and/or State of Montana would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   Participation from local agencies would not be expected due to the lack of interest, ownership, and/or jurisdiction within the corridors. The State of Montana, however, would be an essential partner in the administration of this segment.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   Administrative Costs: It is not expected that Wild and Scenic River designation would substantially increase management costs in this river corridor due to the present costs of complying with existing federal laws; however, there is likely to be some increased cost of administering the area, if designated. No detailed cost analysis or estimate was prepared as part of this study.

   Land Acquisition: At this time, it is not expected that the BLM would pursue land acquisition from willing sellers. The majority of the land within the segment corridor is not BLM-administered land. It would be difficult for the BLM to acquire enough additional land to affect the manageability of the area. No detailed cost analysis or estimate was prepared as part of this study.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   Because the segment is in the Rocky Mountain Front Conservation Area, other agencies are anticipated to participate in preserving the river corridor. However, there have been no discussions with other agencies regarding designation.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   There are no known land use controls.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***
   Scenic values are primarily provided by the Rocky Mountain Front on National Forest System land next to the segment. Because of this, the BLM's capacity to

manage and protect this value is low. Similarly, cultural values lie primarily in unrecorded cultural sites along the length of the river, potentially including BLM-administered lands. Therefore the BLM's capacity to manage and protect this resource is limited to those sites potentially on BLM-administered lands.

Recreational values are primarily fishing opportunities and the potential to view large wildlife, including grizzly bear. Wildlife of this size depend on habitats outside of BLM-administered lands in the segment. Although the grizzly bear is a BLM sensitive species, its residency on BLM-administered lands in this segment is likely limited to infrequent transits.

Fisheries in the segment are brown trout, rainbow trout, mountain whitefish, and walleye. These fisheries are generally managed by the State. For this reason, the BLM's capacity to manage and protect these values is also limited.

The Sun River supports fluvial arctic grayling, a BLM sensitive species. However, the BLM's capacity to manage and protect this fish value is limited. This is because of the small amount of BLM-administered land relative to the larger portions of river supporting this species.

10. ***The existing support or opposition of designation***
    There is no existing support for or opposition to designation.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***
    Designation would meet the objectives of habitat conservation in the Rocky Mountain Front Conservation Area, even though this area is not specifically focused on scenic values. Preserving intact ecosystems would typically maintain or enhance scenic values; protecting scenic values would typically mean managing landscapes to prevent disturbance, which would incidentally maintain unfragmented ecosystems.

12. ***The contribution to river system or basin integrity***
    Inclusion in the National System would not contribute to river system integrity.

13. ***The potential for water resources development***
    Sun River Diversion Dam is approximately 1 mile upstream of the segment, though this existing project would not likely be foregone. The existing Pishkun Road Bridge is several hundred feet upstream of the segment. No additional water resource development projects are known within the segment or segment vicinity.

4.16.2 Preliminary Suitability Determination

Sun River Segment 1 is determined preliminarily **not suitable**. Only a small portion of the segment crosses BLM-administered land. Its associated scenic values relate more directly to the Rocky Mountain Front than the river. There is an abundance of diversions and canals and some chronic dewatering of the Sun

River that are outside of the BLM's control. This would make the segment difficult for the BLM to manage. There are also mechanisms in place to manage the ORVs that are better suited to this than WSR designation. There is a proposed ACEC in the area.

4.17 SUN RIVER SEGMENT 2

Tentative Classification: Recreational **ORVs:** Recreation, Fish, Cultural

4.17.1 Suitability Criteria

1. ***Characteristics that do, or do not, make the area a worthy addition to the National System***

   The Sun River attracts recreational users from outside Montana. Recreation opportunities are outstanding for fishing, floating, sightseeing, and observing wildlife. Anglers can fish for brown trout, rainbow trout, and mountain whitefish. Two parcels are readily accessible from paved highways, and another parcel is less than one-quarter mile from a maintained county road.

   This segment has a high density of unrecorded cultural sites that were occupied and used by the Blackfoot Nation. These sites are likely regionally important, if not nationally, for interpreting the occupation and use of the Blackfeet people in the Sun River Valley. The valley was an important gathering site for various bands of the Blackfoot Nation to reconnect and procure resources unavailable in the prairie. The area contained many, if not most, of the Sundance sites, which supports its importance as a gathering place. Camps were situated along the river because of the presence of rare paint sources, medicines, and medicinal springs. Expanding the cultural significance of the area, the Salish and Kutenai people also occupied it, until the Blackfoot Nation ousted them.

2. ***Current status of landownership and use in the area***

   The Sun River Segment 2 forms part of the boundary between Teton and Lewis and Clark Counties. The Sun River originates in the Lewis and Clark National Forest, flowing east to its confluence with the Missouri River. This segment consists of five small BLM parcels scattered along a 39.1-mile stretch of the Sun River, south of Choteau, Montana. Approximately 1.3 miles are on BLM-administered land in Segment 2. The remaining length is on private surface. Within the study area (0.25-mile buffer from the ordinary high water mark on either side of the segment), which totals 800 acres, 170 acres (21 percent) are BLM-administered lands, 620 acres (78 percent) are private lands, and 10 acres (1 percent) are state lands.

3. ***Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National System***
   Recreational opportunities for fishing, floating, and wildlife viewing could be enhanced.

4. ***The federal agency that will administer the area should it be added to the National System***
   If Sun River Segment 2 were added to the National System, the State of Montana would be most suited to manage the land and resources within this boundary, unless Congress designated another agency.

5. ***The extent to which the agency proposes that administration of the river, including the costs thereof, is shared by state and local agencies***
   The State administers significant portions of the Sun River within Segment 2, so it is reasonable to assume administration would be shared between the State and the BLM.

6. ***The estimated cost of acquiring necessary lands or interests in land within the corridor, as well as the cost of administering the area, should it be added to the National System***
   Administrative Costs: It is not expected that Wild and Scenic River designation would substantially increase management costs in this river corridor due to the present costs of complying with existing federal laws; however, there is likely to be some increased cost of administering the area if designated. No detailed cost analysis or estimate was prepared as part of this study.

   Land Acquisition: At this time, it is not expected that the BLM would pursue land acquisition from willing sellers. The majority of the land within the segment corridor is not BLM-administered land. It would be difficult for the BLM to acquire enough additional land to affect the manageability of the area. No detailed cost analysis or estimate was prepared as part of this study.

7. ***The extent that other federal agencies or the state or its political subdivisions might participate in the preservation and administration of the river should it be proposed for inclusion in the National System***
   The State administers significant portions of the Sun River within Segment 2, so it is reasonable to assume that it may participate in the preservation and administration of the river.

8. ***An evaluation of local zoning and other land use controls in protecting the river's ORVs and preventing incompatible development***
   There are no known land use controls.

9. ***The state/local government's capacity to manage and protect the ORVs on nonfederal lands***

   Cultural values lie primarily in unrecorded cultural sites along the length of the river, potentially including BLM-administered lands. Therefore, the BLM's capacity to manage and protect this resource is limited to those sites potentially occurring on BLM-administered lands.

   Recreational values are primarily provided by fishing, which depends on habitats outside of the BLM-administered lands in the segment. Fisheries in the segment include brown trout, rainbow trout, mountain whitefish, and walleye; these species are generally managed by the State. For these reasons, the BLM's capacity to manage and protect these values is also limited.

10. ***The existing support or opposition of designation***

    There is no existing support for or opposition to designation.

11. ***The consistency of designation with other agency plans, programs, and policies in meeting regional objectives***

    There are no other plans, programs, or policies on federal lands in this area.

12. ***The contribution to river system or basin integrity***

    Inclusion in the National System would not contribute to river system integrity.

13. ***The potential for water resources development***

    No planned water resources development projects are known within the segment or segment vicinity.

4.17.2 Preliminary Suitability Determination

Sun River Segment 2 is determined preliminarily **not suitable**. Only a small portion of it crosses BLM-administered land. There are also mechanisms in place to manage the ORVs that are better suited to this than WSR designation.

CHAPTER 5
INTERIM MANAGEMENT AND NEXT STEPS

5.1 INTERIM MANAGEMENT

River segments determined to be eligible are afforded interim protective management until a suitability study is completed. The BLM's policy is to protect any ORVs identified in the eligibility determination process to ensure that a decision on suitability can be made; or, in the case of suitable rivers, until Congress designates the river or releases it for further uses (BLM 2012).

The BLM has broad discretion authority to not impact river values or make decisions that might lead to a determination of eligibility. It is the BLM's policy to manage and protect the free-flowing character, tentative classification, and identified ORVs of eligible rivers according to the decisions in the associated RMP. This protection occurs at the point of eligibility determination, so as not to adversely constrain the suitability assessment or subsequent recommendation to Congress. The BLM may protect river values using both NEPA and the Federal Land Policy and Management Act.

Wild and scenic river issues involving NEPA supplementation are the same as for other resource values. When the BLM considers a proposal that could constitute a major federal action that significantly affects the quality of the human environment, the Council on Environmental Quality's regulations require NEPA compliance before the BLM can act on the proposal (40 Code of Federal Regulations, Part 1506.1). Eligible river segments determined to be unsuitable through a land use plan decision are subject to the direction and management decisions contained in the RMP.

Table 5-1, Interim Protection for Candidate Wild and Scenic Rivers, describes the interim protection standards for eligible and suitable segments.

Table 5-1
Interim Protection for Candidate Wild and Scenic Rivers

Issue	Management Prescription/Action
Study boundary	Minimum of 0.25 miles from ordinary high water mark Boundary may include adjacent areas needed to protect identified values
Preliminary classification (Section 2(b) of WSR Act)	Three classes: wild, scenic, recreational (defined by statute) Criteria for classification described in Interagency Guidelines Manage at recommended classification
Study report review procedures	Notice of study report/draft EIS published in the *Federal Register* Comments/response from federal, state, and local agencies, and the public included in the study report/final EIS transmitted to the President and Congress
Private land: • Administration • Acquisition	Affect private land uses through voluntary partnership with state/local governments and landowners No regulatory authority Typically an evaluation of the adequacy of local zoning and land use controls is a component of suitability determination[1] No ability to acquire interest in land under the Act's authority prior to designation
Water resources project	River's free-flowing condition protected to the extent of other agency authorities; not protected under the WSR Act
Land disposition	Agency discretion to retain lands within river corridor in federal ownership
Mining and mineral leasing	Protect free flow, water quality, and ORVs through other agency authorities
Actions of other agencies	Affect actions of other agencies through voluntary partnership.
Protect Outstandingly Remarkable Values	No regulatory authority conferred by the WSR Act; agency protects through other authorities Section 11(b)1: Limited financial or other assistance to encourage participation in the acquisition, protection, and management of river resources[2]

[1] For an agency-identified study river that includes private lands there is often the need to evaluate existing state and local land use controls and, if necessary, assess the willingness of state and local government to protect river values.

[2] Section 11(b)1 authorizes the Secretary of the Interior and Secretary of Agriculture, or the head of any other federal agency, to provide for "limited financial or other assistance to encourage participation in the acquisition, protection, and management of river resources." This authority "applies within or outside a federally administered area and applies to rivers which are components of the National and to other rivers." The recipients of federal assistance include states or their political subdivisions, landowners, private organizations, or individuals. Some examples of assistance under this section include, but are not limited to, riparian restoration, riparian fencing to protect water quality and riparian vegetation, or vegetative screening to enhance scenery/recreation experience.

Source: Interagency Wild and Scenic Rivers Coordinating Council 1999

5.2 NEXT STEPS

The Draft RMP will incorporate each of the eligible rivers into one or more alternatives. The BLM will then seek public review and comment on the draft RMP. The draft EIS will assess potential impacts from recommending each river as either suitable or not suitable for inclusion in the National System. The proposed RMP and final EIS will include final suitability determinations on the eligible rivers. Congressional legislative action is required for actual designation and final classification of suitable river segments.

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CHAPTER 6
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Appendix W

Analysis Assumptions and Cumulative Effect Scenario

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TABLE OF CONTENTS

Chapter Page

APPENDIX W. ANALYSIS ASSUMPTIONS AND CUMULATIVE EFFECT SCENARIO W-1

W.1 General Analytical Assumptions.......... W-1
W.2 Cumulative Effects W-5
W.3 Methods of Analysis for Direct and Indirect Effects W-14
  W.3.1 Air Resources and Climate W-14
  W.3.2 Soil Resources W-28
  W.3.3 Water Resources.......... W-34
  W.3.4 Vegetation Communities W-41
  W.3.5 Fish and Wildlife.......... W-45
  W.3.6 Wildfire Ecology and Management.......... W-52
  W.3.7 Cultural and Heritage Resources.......... W-54
  W.3.8 Paleontological Resources W-57
  W.3.9 Visual Resources W-60
  W.3.10 Lands with Wilderness Characteristics.......... W-69
  W.3.11 Cave and Karst Resources W-72
  W.3.12 Minerals and Energy W-72
  W.3.13 Livestock Grazing W-77
  W.3.14 Recreation and Visitor Services W-81
  W.3.15 Travel, Transportation Management, and Access.......... W-85
  W.3.16 Lands and Realty W-86
  W.3.17 Renewable Energy W-89
  W.3.18 Withdrawals.......... W-92
  W.3.19 Forest, Woodland, and Special Products.......... W-92
  W.3.20 Areas of Critical Environmental Concern W-93
  W.3.21 Back Country Byways.......... W-94
  W.3.22 National Trails.......... W-95
  W.3.23 Wild and Scenic Rivers.......... W-97
  W.3.24 Wilderness Study Areas.......... W-99
  W.3.25 Socioeconomics W-100
  W.3.26 Tribal Interests.......... W-103
W.4 References.......... W-105

TABLES

Page

W-1 Estimated Number of Wells and Associated Disturbance W-3
W-2 Past, Present, and Reasonably Foreseeable Projects, Plans, or Actions that Comprise the Cumulative Effect Scenario.......... W-5
W-3 Predicted Near-field Oil and Gas Effects on Criteria Pollutant Concentrations W-18
W-4 Health Effects of Modeled Hazardous Air Pollutants.......... W-20
W-5 Predicted Effects on Acute Short-Term Hazardous Air Pollutant Concentrations W-20
W-6 Predicted Effects on Chronic Noncarcinogenic Hazardous Air Pollutant Concentrations.......... W-21
W-7 Carcinogenic Hazardous Air Pollutant Modeling Results for All Alternatives.......... W-21
W-8 VISCREEN Plume Visibility Modeling Results for All Alternatives.......... W-22

W-9 Estimated Maximum Annual Criteria Pollutant and GHG Emissions as a Percentage of Existing Emissions W-23
W-10 BLM Fossil Fuel Combustion Greenhouse Gas Emissions by Alternative W-27
W-11 Visual Resource Classes W-61
W-12 Indicators for SoP Values W-102

DIAGRAM

Page

W-1 Extent of PM_{10} Concentrations Above PSD Increments W-19

Appendix W. Analysis Assumptions and Cumulative Effect Scenario

W.1 GENERAL ANALYTICAL ASSUMPTIONS

The following general assumptions apply to all resource categories. Any specific resource assumptions are provided in the methods of analysis section for that resource.

Implementing actions from any of the RMP alternatives will be in compliance with all valid existing rights, federal regulations, BLM policies, and other requirements.

Implementation-level actions necessary to execute the land use plan-level decisions in this RMP will be subject to further environmental review, including NEPA, as appropriate. The RMP/EIS may support future implementation decisions, such as issuing leases for fluid minerals (oil, gas, and geothermal resources).

Restrictions on land use authorizations are identified for ROW avoidance or ROW exclusion areas. Because the BLM does not have jurisdiction over split-estate lands for land use authorizations, ROW avoidance and ROW exclusion restrictions apply only to the 651,200 acres of BLM-administered surface in the decision area.

Administrative access includes motorized wheeled cross-country travel for lessees and permittees that is limited to the administration of a federal lease or permit. Persons or corporations having such a permit or lease could perform administrative functions on public lands in the scope of the permit or lease; however, this would not preclude modifying permits or leases to limit motorized wheeled cross-country travel during further site-specific analysis to meet resource management objectives or standards and guidelines (BLM 2003).

The preparers of the RFD scenario for oil and gas activities in the planning area [BLM 2014a]), based on federal minerals without any development restrictions, estimated that up to 658 wells will be drilled in the planning area. Up to 25 of these wells could be coal bed natural gas wells, with the remainder being conventional oil and gas wells. Approximately 3,914 acres of new short-term disturbance (conventional and coal bed gas disturbance combined) could occur if all projected wells are drilled, of which 446 acres would be BLM-administered. Including existing wells, total short-term surface disturbance is projected to be about 4,831 acres (494 acres of BLM-administered disturbance). A constrained RFD scenario was also prepared, presented below under *Oil and Gas Reasonably Foreseeable Development Scenario*, and lists projected future oil and gas exploratory and development activity and associated disturbance through 2033. It is based on the management actions (constraints) for the draft alternatives (BLM 2015).

Oil and gas drilling techniques could include vertical and horizontal drilling and the use of hydraulic fracturing.

Based on the BLM's Automated Fluid Minerals Support System well database, IHS Energy's well database, and the Montana Board of Oil and Gas Conservation's well database, there have been approximately 3,966 wells drilled in the study area as of March 2014 (BLM 2014a). Approximately 9 percent of these wells (357 wells) were drilled on federal mineral estate. Out of all wells (all mineral estates) drilled in the planning area, approximately 890 (22 percent) are active (BLM 2014a, p. 181). Approximately 73 percent of active wells or 634 wells are for oil, 21 percent or 183 wells are for gas, and 6 percent or 52 wells are injection wells (BLM 2014a, p. 6). Because the primary oil and gas fields in the planning area are largely played out, the level of activity on existing leases in the planning area is likely to remain relatively stable for the life of the RMP. The one possible exception is the Heath shale play, where activity on leases is still in the early stage.

Direct effects of implementing the RMP will primarily occur on the public lands administered by the LFO and BFO; however, indirect effects may occur at a broader scale due to the scattered landownership in the planning area.

Local climate patterns of historical record and related conditions for plant growth will continue.

In the future, as tools for predicting climate variability in a management area improve and climate variability affects resources and necessitates changes in how resources are managed, the BLM may reevaluate decisions made as part of this planning process and may adjust management accordingly.

The functional capability of all developments will be appropriately maintained.

The discussion of effects is based on the best available data. Where data are limited, the BLM used knowledge of the planning area and professional judgment, based on observation and analysis of conditions and responses in similar areas.

BMPs or mitigation measures (Appendix F) will apply, where appropriate, to all authorized surface-disturbing activities and occupancy associated with land use authorizations, permits, and leases issued on BLM-administered lands. The BLM administers approximately 651,200 surface acres in the decision area. Stipulations (Appendix L) also apply to fluid minerals leasing on lands overlying federal mineral estate, which includes that underlying BLM-administered lands, privately owned lands, and state-owned lands. There are 1,196,800 acres of federal mineral estate in the decision area.

The action alternatives carry forward the decision from the 2001 Off-Highway Vehicle EIS and Proposed Plan Amendment for Montana, North Dakota, and Portions of South Dakota (BLM and Forest Service 2001) that OHV travel be limited to existing designated routes in the decision area. This was analyzed as Alternative 5 in the Final EIS and the same effects would occur under all action alternatives of this plan.

Data from GIS have been used in developing acreage calculations and for generating many of the figures. Calculations depend on the quality and availability of data; most calculations in this RMP are rounded to the nearest 100 acres. Given the scale of the analysis, the compatibility constraints between datasets, and the lack of data for some resources, all calculations are approximate and serve for comparison and analytic purposes only. The BLM may receive additional GIS data; therefore, acreages may be later recalculated and revised. Occasionally, due to multiple datasets manipulation (GIS intersects), data may not sum correctly within 1,000 acres of the decision area's totals.

- Some effects could not be quantified, given the proposed management actions. Where this gap occurred, effects were projected in qualitative terms or, in some instances, were described as unknown. Subsequent project-level analyses will provide the opportunity to collect and examine site-specific inventory data required to determine appropriate application of RMP-level guidance. In addition, the BLM and other agencies in the planning area continue to update and refine information used to implement this plan.

Oil and Gas Reasonably Foreseeable Development Scenario

The RFD scenario, presented below in **Table W-1**, Estimated Number of Wells and Associated Disturbance, lists projected future oil and gas exploratory and development activity and associated disturbance through 2033. It is based on the management actions (constraints) for the draft alternatives (BLM 2015).

Alternative A represents an unconstrained development scenario, which does not account for the actual effect of the existing protest resolution. Alternative A is intended as a baseline comparison to the constrained management scenarios.

Factors used to project future activities include a review of published oil and gas resource information for the area (including a number of online databases), a call for data from oil and gas operators, a review of petroleum technology research and development, geophysical activity, and limitations on access and infrastructure.

Note that the reasonably foreseeable development projections presented in **Table W-1** are possible or are likely to happen and should not be considered to be worst-case scenarios; they are reasonable and science-based projections of the anticipated oil and gas activity (BLM 2015).

Table W-1
Estimated Number of Wells and Associated Disturbance

Disturbance Associated with All New Drilled Wells and Existing Active Wells (Short-Term Disturbance)[1]						
Wells			**Acres of Surface Disturbance**			
Type	**Total**	**BLM-Administered**	**Access Roads/ Flow Lines**	**Well Pad**	**Total**	**BLM-Administered**
Alternative A (Unconstrained)						
New exploratory and development wells—coal bed gas	22	0	3.64	1	102	0
New exploratory and development wells—conventional	629	68	3.9	2.1	3,774	408
Existing wells	890	47	0.78	0.25	917	48
Total Wells/Disturbance	**1,541**	**115**	–	–	**4,793**	**456**
Alternative B						
New exploratory and development wells—coal bed gas	22	0	3.64	1	102	0
New exploratory and development wells—conventional	608	47	3.9	2.1	3,648	282
Existing wells	890	47	0.78	0.25	917	48
Total Wells/Disturbance	**1,520**	**94**	–	–	**4,667**	**330**

Disturbance Associated with All New Drilled Wells and Existing Active Wells (Short-Term Disturbance)[1]

Wells			Acres of Surface Disturbance			
Type	**Total**	**BLM-Administered**	**Access Roads/ Flow Lines**	**Well Pad**	**Total**	**BLM-Administered**
Alternative C1 (Preferred Alternative)						
New exploratory and development wells—coal bed gas	22	0	3.64	1	102	0
New exploratory and development wells—conventional	617	56	3.9	2.1	3,702	336
Existing wells	890	47	0.78	0.25	917	48
Total Wells/Disturbance	**1,529**	**103**	–	–	**4,721**	**384**
Alternative C2 (Proposed Alternative) and Alternative D						
New exploratory and development wells—coal bed gas	22	0	3.64	1	102	0
New exploratory and development wells—conventional	614	53	3.9	2.1	3,684	318
Existing wells	890	47	0.78	0.25	917	48
Total Wells/Disturbance	**1,526**	**100**	–	–	**4,703**	**366**

Disturbance Associated with All New Producing Wells and Existing Active Wells Less Abandonments (Long-Term Disturbance)

Wells			Acres of Surface Disturbance			
Type	**Total**	**BLM-Administered**	**Access Roads/ Flow Lines**	**Well Pad**	**Total**	**BLM-Administered**
Alternative A (Unconstrained)						
New exploratory and development wells—coal bed gas	20	0	0.5	0.5	20	0
New exploratory and development wells—conventional	465	50	0.78	0.25	479	52
Existing wells	668	35	0.78	0.25	688	36
Total Wells/Disturbance	**1,153**	**86**	–	–	**1,187**	**88**
Alternative B						
New exploratory and development wells—coal bed gas	20	0	0.5	0.5	20	0
New exploratory and development wells—conventional	450	35	0.78	0.25	463	36
Existing wells	668	35	0.78	0.25	688	36
Total Wells/Disturbance	**1,138**	**70**	–	–	**1,171**	**72**
Alternative C1 (Preferred Alternative)						
New exploratory and development wells—coal bed gas	20	0	0.5	0.5	20	0
New exploratory and development wells—conventional	457	41	0.78	0.25	470	43

Disturbance Associated with All New Producing Wells and Existing Active Wells Less Abandonments (Long-Term Disturbance)						
Wells			**Acres of Surface Disturbance**			
Type	**Total**	**BLM-Administered**	**Access Roads/ Flow Lines**	**Well Pad**	**Total**	**BLM-Administered**
Existing wells	668	35	0.78	0.25	688	36
Total Wells/Disturbance	**1,144**	**77**	–	–	**1,178**	**79**
Alternative C2 (Proposed Alternative) and Alternative D						
New exploratory and development wells—coal bed gas	20	0	0.5	0.5	20	0
New exploratory and development wells—conventional	454	39	0.78	0.25	468	40
Existing wells	668	35	0.78	0.25	688	36
Total Wells/Disturbance	**1,142**	**74**	–	–	**1,176**	**77**

Source: BLM 2015

[1] Totals may not reflect the sum due to rounding. This implies that 87 percent of the land is reclaimed back to pre-surface disturbance activities.

W.2 CUMULATIVE EFFECTS

Cumulative effects on the environment result from implementing any one of the RMP alternatives in combination with other reasonably foreseeable actions outside the scope of this plan, either in the planning area or next to it. The total effect of any single action cannot be determined by considering it in isolation but must be determined by considering the likely result of that action in conjunction with many others.

The cumulative effect analysis is limited to important issues of national, regional, or local significance; therefore, not all resources identified for the direct and indirect effect analysis in this EIS are analyzed for cumulative effects. Past, present, and reasonably foreseeable future projects and activities are evaluated on the basis of proximity, connection to the same environmental systems, potential for subsequent effects or activity, similar effects, the likelihood a project will occur, and whether the project is reasonably foreseeable. Projects and activities identified as having the greatest likelihood to generate potential cumulative effects when added to the RMP alternatives are displayed in **Table W-2**.

Table W-2
Past, Present, and Reasonably Foreseeable Projects, Plans, or Actions that Comprise the Cumulative Effect Scenario

Past Projects, Plans, or Actions	
Human Actions	
Land Use Plans	The Charles M. Russell NWR Comprehensive Conservation Plan and EIS for the refuge was completed in 2012. Its purpose is to specify a management direction for the refuge for the next 15 years. The goals, objectives, and strategies for improving refuge conditions are described in the comprehensive plan. They include the types of habitat provided, the partnership opportunities, and the management actions needed to achieve desired conditions.
	The Billings and Miles City BLM Field Offices, and HiLine BLM District Office revised their RMPs. RODs for these plans were completed in September 2015.

Past Projects, Plans, or Actions	
Energy and Minerals Development	Oil and Gas Leasing. Since 1988, the LFO has deferred nominated oil and gas lease parcels that require a special lease stipulation to protect important wildlife values. These deferrals are based on a 1988 IM directive to meet the Bureau Supplemental Guidance Standard until plan amendments or RMPs/EISs could be completed. These deferrals will be resolved when the ROD is signed for this RMP, then there may be additional disturbance from oil and gas exploration and development.
	Coal and Oil Shale Development. No federal oil shale resources have been developed in the planning area, and no coal leasing has occurred in the last 20 years.
	Nonenergy Solid Leasables. The BLM has issued 24 prospecting permits for nonenergy leasable minerals on acquired lands over the past 20 years. Generally, two to three small-scale prospecting permits are active at any given time, but, as of July 2013, only one prospecting permit was authorized.
	Locatable Minerals. There has been one plan of operation and two Notices in the last 20 years encompassing 6 acres.
	Salable Minerals. The BLM has issued 21 mineral material permits or sales in the planning area over the past 20 years. Most mineral material activity involves free use permits issued to county or state governments for road construction or maintenance.
	Renewable Energy. Between 2004 and 2014, wind turbines were erected on eight sites in, and next to, the planning area. All sites are on private land. These sites represent approximately 600 MW, with approximately 430 wind turbines (Diffendorfer et al. 2014). There are no authorizations or pending applications for biomass production in the planning area.
Lands and Realty	Land Tenure. See present actions.
	Land Use Authorizations. In the nine-county project planning area, the number of ROW actions based on authorizations has steadily increased, from 9 in 2006 to a high of 22 in 2012. The average between 2006 and 2015 was approximately 17 actions per year. The fiscal year (FY) 2015 actions are as follows: • One temporary use (film) permit, for 2,710 acres of temporary occupancy • Four road ROWs, for 3 acres of disturbance • Five telecommunication ROWs, for 58 acres of disturbance • Two water facility ROWs, for 25 acres of disturbance • One oil and gas pipeline, for 21.77 acres of disturbance
	To date, the total 2015 surface disturbance was approximately 2,821.15 acres, 2,710.14 acres of which are temporary surface occupancy. Some ROWs will encumber land in more than one county. When this happens, it may split a township or range between two counties, and the BLM's computer system will note both counties, rather than one or the other. For accuracy, the total acreage is reported for the ROW, not for all counties involved. ROWs have specific size or geographical locations. For instance, a ROW may cover a two-track 15-foot-wide road of a certain length. However, the ROW may authorize a width of 20 feet for maintenance. Therefore, the ROW acreage calculation would be based on 20 feet rather than 15 feet, which would appear to be a higher number of acres disturbed than the actual disturbance. This is especially true with utility services. While a power line may physically occupy only a 5-foot-long strip, it may have a 30-foot-wide ROW. Using this example, a 5-foot-wide ROW for 5 miles would actually disturb only 3.03 acres, yet the authorization document would reflect the 30-foot-wide strip, or 18.18 acres.

Past Projects, Plans, or Actions	
Lands and Realty *(continued)*	Operation and maintenance of power lines on the Rocky Mountain Front and other federal land in the planning area.
	Private land values, combined with outstanding opportunities for recreation and solitude in and next to the planning area, have fueled the growth of numerous residential recreation developments; these are often intermingled with BLM-administered lands throughout the planning area. Primary areas of development are centered near existing population centers, such as Great Falls and Lewistown, and river and road corridors along the Upper Missouri River, Belt Creek, and the Upper Judith River (BLM 2012a).
Livestock Grazing and Agriculture	Livestock grazing has a long history in the region, although, generally, it has decreased over the past 100 years. Grazing in portions of the planning area has either remained stable or declined in the recent past, and demand on BLM-administered lands remained stable between 2002 and 2012.
	Infrastructure on BLM-administered lands, National Forest System lands, USFWS lands, and other state and private lands to support livestock grazing consists of stock water pipelines, watering sites (including those for reservoirs and reservoir reconstructions), pits and stock tanks, cattle guards, and fences.
	In 2010, the NRCS launched its Sage-grouse Initiative to reduce threats facing sage-grouse on private lands. In Montana, from FY2010 to FY2014, the NRCS reported entering 409,594 acres into grazing systems, 70,111 acres into easements, and 5,442 acres of reseeding. Seventy-five percent of these efforts have targeted priority areas for conservation, which occur in the eastern half of the planning area (NRCS 2015).
	The primary areas of agricultural conversion are in Cascade, Chouteau, eastern Pondera, and Teton Counties, and near the vicinities of Winifred, Roy, and the northeastern flanks of the Little Belt Mountains (BLM 2012b).
Recreation and Visitor Services	Annually, approximately 166,000 visitors recreate on BLM-administered lands. The most popular activity is big game hunting, which takes place predominantly during autumn (BLM 2012a). The LFO has an active SRP program, issuing approximately 15 SRPs per year for outfitters, activities, and events.
	Recreation in the planning area is also influenced by areas of regional, national, and global significance, such as Glacier National Park, the UMRBNM, the Upper Missouri River, Smith River, and Fort Peck Lake and by recreation opportunities in the Lewis and Clark and Helena National Forests and the USFWS wildlife refuges, such as the Charles M. Russell NWR.
Travel and Transportation Management	Urban development patterns, the continuing growth of vehicle-based recreation, planned road and highway projects, and population growth have increased demand and construction of transportation routes near the planning area. Travel off designated or existing routes and the creation of administrative trails has occurred and would likely continue to occur in the decision area.
	The Lewis and Clark National Forest completed a proposal to decommission and obliterate the roads that were identified in the Little Belt, Castle, and North Half Crazy Mountains Travel Plan Final EIS. This project will also maintain or restore healthy soil and water conditions. The approved RMP for the UMRBNM designated 404 miles of open or limited routes that are available for all forms of motorized and mechanized use, consistent with management objectives (BLM 2008a).

	Past Projects, Plans, or Actions
Vegetation Management	Hazardous Fuels Reduction. The LFO recorded 23,802 acres of vegetation treatments from 2004 to 2014. Treatments were prescribed fire (broadcast and pile burning) and mechanical treatments, such as thinning, lop and scatter, mastication, and biomass removal. Treatments were designed to maintain wildlife habitat, reduce fuel loadings, and improve vegetation community health.
	Conifer Removal. Conifers were removed on approximately 3,000 acres, approximately 30 miles north of Winnett in 2014 and 2015. Conifers are planned to be removed on approximately 3,000 acres in the same vicinity in 2016, with the planned removal on 1,000 to 2,000 acres annually thereafter. The North Fork project would remove approximately 300 acres of conifers, mostly Douglas-fir habitat in the Belt Mountains.
	The Lewis and Clark National Forest has developed a vegetation restoration proposal for the Little Snowy Mountains on the Musselshell Ranger District in central Montana. The purpose of this project is to begin restoring a dry-site, open ponderosa pine forest and the associated communities. This would include a mosaic of open, grassy meadows and aspen stands that are important to whitetail deer, turkeys, and nongame species, while recognizing the importance of other big game, such as elk and black bear.
	The 2013 Lewis and Clark National Forest Blankenship Vegetation Project includes commercial timber harvesting, pre-burn slashing, and prescribed burning to address the mountain pine beetle epidemic.
	The 2012 Lewis and Clark National Forest Blacktail Hill Project proposes thinning to remove primarily Douglas-fir encroachment to promote the existing ponderosa pine across the project area. This proposal also includes prescribed burning to maintain wildlife habitat, improve stands, and reduce fuel loadings.
	The 2010 Lewis and Clark National Forest Benchmark Fuels Reduction Project proposes to treat fuels on 763 acres in a project area of 10,593 acres. Most of these acres will be treated by cutting small-diameter conifers and applying prescribed fire.
Forestry	Historical harvest levels over the past 5 years have increased, as a result of salvage operations in response to insect and disease outbreaks and other natural disturbances. Harvest volume for salvage operations has averaged 1.5 MMBF over the past 5 years, and fuel wood sales have averaged 400 cords per year.
Special Status Species Management	The Final EIS for Northern Rockies Lynx Amendment, which assesses guidelines for managing Canada lynx on certain lands under the authority of the Forest Service and the BLM was issued in summer 2007 (Forest Service 2007).
	In 2013, a draft NCDE Grizzly Bear Conservation Strategy was developed and describes the coordinated management and monitoring necessary to maintain a recovered grizzly bear population in the NCDE (USFWS 2013a).
	The Montana Bighorn Sheep Conservation Strategy provides a statewide comprehensive plan for managing bighorn sheep (MFWP 2010).
	The Governor of Montana issued EO 12-2015, which amended EO 10-2014 and implemented the Montana Sage-grouse Habitat Conservation Program. The EO outlines a number of conservation strategies for state agencies to follow for land uses and activities in greater sage-grouse habitat. It also established the Montana Sage Grouse Oversight Team (MSGOT) and habitat conservation program. Montana's conservation is complementary to the conservation measures proposed in the BLM land use plans; when the two are combined, they would provide conservation across landownership boundaries.
	In 2013, the Canada Lynx Conservation Assessment and Strategy, 3rd edition, was completed. It described coordinated management necessary for Canada lynx (Interagency Lynx Biology Team 2013)

Past Projects, Plans, or Actions	
Water Use	Water withdrawn for irrigation accounts for more than 97 percent of water withdrawn in Montana each year and supplies 2.13 million acres (MDEQ 2007). Irrigated agriculture is, by far, the largest use of surface water in Montana and the planning area. The State has adjudicated most irrigation water rights or is in the process of adjudicating them. Surface water appropriations of streams and rivers outside of closed basins have had limited new appropriations of surface water. For example, in the Judith River and Arrow Creek basins, the State of Montana has issued only 14 water use permits since 2001. Four of these permits were groundwater appropriations, and there were no new permits for surface water irrigation.
	The primary use of surface water on BLM-administered lands is for stock water, wildlife, and fisheries. There are 9,155 dams, pits, and reservoirs in the planning area, and roughly 10 percent of these are on BLM-administered lands. Most of these developments were built before the mid-1980s, and the rate of reservoir construction has decreased, along with other surface water appropriations.
	There are roughly 200,000 wells registered in Montana and more than half of those were drilled in the past 20 years; more than 6,000 wells were drilled in 2004 (Metesh 2012). By far, the rate of growth has been for domestic wells, which account for 85 to 90 percent of wells drilled in a given year (Metesh 2012). There has also been a notable increase in the number of wells drilled for irrigation. This trend was temporarily disrupted by the economic downturn in 2008, but, in general, the number of domestic wells tends to mimic population growth (Metesh 2012). Specific to BLM-administered lands in the planning area, in the last 20 years, the BLM has plugged at least 14 flowing wells in the Eagle Formation.
Public Health and Safety	The goal of the Lewis and Clark National Forest Abandoned Mine Lands Closure 2015 Project is to close 16 hazardous mine openings and prospecting pits that may be a hazard to the public or livestock. The general location of this project is in the Little Belt and Castle Mountains of central Montana in Judith Basin and Meagher Counties.
Natural Processes	
Spread of Noxious and Invasive Weeds	See present actions.
Spread of Forest Insects and Diseases	See present actions.
Drought	See present actions.
Wildfire and Fuels	Fires in the planning area are both natural and human caused. Wildfires have been widely distributed in terms of frequency and severity. From 2004 to 2014, there have been 264 wildfires documented on BLM-administered lands or lands where the BLM assisted partners in the LFO. Reported during that time were 38,221 acres of human-caused fires and 88,467 acres of naturally occurring wildfires.

Present Projects, Plans, or Actions	
Human Actions	
Land Use Plans	The Helena and Lewis and Clark National Forests have begun revising their forest plans; the ROD is expected in summer 2018.
	The Flathead National Forest is revising its forest plan. It is amending the NCDE Grizzly Bear Conservation Strategy for the Lolo, Helena, Kootenai, and Lewis and Clark National Forests. The Helena/Lewis and Clark National Forest is undergoing plan revisions..

Present Projects, Plans, or Actions	
Energy and Minerals Development	Oil and Gas Leasing. See past actions. There are currently 628,500 acres of BLM surface/federal minerals and 568,300 acres of private, state, or other surface/federal mineral leases in the planning area.
	Coal and Oil Shale Development. See past actions.
	Nonenergy Solid Leasables. See past actions.
	Locatable Minerals. In the planning area, there is no active exploration or mining of locatable minerals on BLM-administered lands (Notices and Plans of Operations).
	Salable Minerals. See past actions.
	Renewable Energy. See past actions.
Lands and Realty	Land Tenure. There are 40,900 acres available for disposal in the planning area (BLM 2015b). There are no pending land sales but there is one proposed. Also, there are no pending acquisitions, land exchanges, or purchase actions in the planning area. Currently, the LFO receives very few land tenure adjustment requests per year.
	Land Use Authorizations. See past actions.
Livestock Grazing and Agriculture	Approximately 636,600 acres in the LFO are available for grazing.
	Lewis and Clark National Forest's reissuance of permits.
	The Forest Service's Judith Ranger District in the Lewis and Clark National Forest has developed a proposal for range management and authorized livestock grazing in the Highwood Mountains in central Montana. The Forest Service proposes a combination of adaptive options that will control the time and timing of grazing. These may include adjusting numbers and seasons and class of livestock (yearlings or cow and calf), constructing new pasture and exclosure fences (including temporary electric fences), changing traditional trailing patterns, and developing off-site water troughs.
	The NRCS reports that allocation levels for funding the Sage-grouse Initiative through 2018 is comparable to previous years.
Recreation and Visitor Services	See past actions.
Travel and Transportation Management	See past actions.
Vegetation Management	Hazardous Fuels Reduction. The Forest Service's Rocky Mountain Ranger District is proposing management activities in the Elk and Smith Creek drainages. These treatments are designed to create fuel breaks in the large area of concentrated and continuous fuels resulting from the Canyon Creek Fire of 1988.
	The Lewis and Clark National Forest is developing a proposal for the Big Snowies Aspen and Meadow Restoration Project. The goals of this project are to restore or enhance aspen stand health along the south side of the Big Snowy Mountains, to restore aspen stands to their previous larger size, to maintain meadows, and to improve the diversity of wildlife habitat.
	The Lewis and Clark National Forest is developing a proposal for various silvicultural treatments and prescribed burning on approximately 22,124 acres.
	The Lewis and Clark National Forest is developing a proposal for opening ridgetops in the Highwood Mountains to provide valuable habitat and travel corridors for mountain goat, mule deer, and elk. This project will enhance and preserve these habitats and travel corridors by removing encroaching conifer.
	The Lewis and Clark National Forest is proposing the Upper Sheep Creek Vegetation Project. It would restore a designated landscape in the Upper Sheep Creek watershed area to reduce the risk and extent of insect and disease infestations and to increase the resilience of forest stands.
Forestry	Annual allowable harvest level for the Judith Resource Area is 650 MBF and 26.45 MMBF per decade at the Headwaters Resource Area (BLM 1992, 1984).

	Present Projects, Plans, or Actions
Special Status Species Management	See past actions.
Water Use	See past actions.
Natural Processes	
Spread of Noxious and Invasive Weeds	Noxious weeds have invaded many locations in the planning area, carried by wind, humans, machinery, and animals. The LFO currently manages weed infestations through integrated weed management, including biological, chemical, mechanical, manual, and educational methods, primarily through weed control cooperative range improvement agreements. The Record of Decision on the Vegetation Treatments on Bureau of Lands Management Lands in 17 Western States (BLM 2007) and the Record of Decision on Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on BLM Lands in 17 Western States (BLM 2016) guide the management of noxious weeds.
	Rocky Mountain Ranger District—Invasive Plant Management Strategy. The Lewis and Clark National Forest is preparing this comprehensive management strategy for preventing, controlling, and eradicating noxious weeds in the Rocky Mountain Ranger District of the Lewis and Clark National Forest.
	The BLM currently cooperates with the county weed districts in Cascade, Fergus, Meagher, Petroleum, Pondera, and Teton Counties. It conducts control activities on noxious weeds because of state law requirements.
Spread of Forest Insects and Diseases	Several years of drought in western states have resulted in severe stress on forests. This stress has made trees less able to fend off attacks by insects, such as mountain pine beetles. In recent years, forest diseases and infestations have been widespread throughout Montana.
Drought	For much of the last decade, most of the western United States has experienced drought. Crop production, rangeland, and riparian and forest health have all been affected.
Wildfire and Fuels	See reasonably foreseeable future projects, plans, or actions.

	Reasonably Foreseeable Future Projects, Plans, or Actions
Human Actions	
Energy and Minerals Development	Oil and Gas Leasing. The RFD scenario for oil and gas activities in the planning area summarizes fluid minerals development in the field office and gives a future development scenario based on unconstrained development (BLM 2014a).
	Coal and Oil Shale Development. Due to low demand and limited resource potential, no development of federal coal or oil shale resources is anticipated in the planning area for the life of this RMP.
	Nonenergy Solid Leasables. The level of prospecting is anticipated to stay the same for the life of this RMP.
	Locatable Minerals. Favorable geologic occurrence, past mining, and adjacent private operations can be used as indicators for potential development. Demand and development for other hard rock minerals in the planning area are expected to remain steady for the life of this RMP. Tintina Resources has expressed interest in developing a copper mine in the Sheep Creek drainage, a tributary of the Smith River, in central Montana. The project, known as the Black Butte Copper Mine, is approximately 20 miles north of White Sulphur Springs in central Montana. Tintina is in the exploratory phase of the project but has indicated interest in applying for a full-scale mine operating permit in late 2015. The Tintina Project is a state/private project and will not require a plan of operations. Permitting will be administered through MDEQ.

Reasonably Foreseeable Future Projects, Plans, or Actions	
Energy and Minerals Development *(continued)*	Salable Minerals. Salable mineral activity is expected to continue at roughly the same level for the life of the RMP.
	Renewable Energy. There is some potential for land use authorizations for renewable energy projects, such as wind and solar, although no requests have been submitted as of 2013 (BLM 2015b). In the planning area, the source of renewable energy would most likely be wind energy, as this has the greatest potential for commercial-scale renewable energy generation (NREL 2014).
	Montana based, Absaroka Energy, LLC, is developing the Gordon Butte Pumped Storage Hydro Project. The project will be on private land in Meagher County, 3 miles west of the small town of Martinsdale. The project is designed to take advantage of the unique geological features of Gordon Butte to create a new closed-loop, pumped storage, hydro facility. This facility will provide ancillary and balancing capabilities to Montana's emerging renewable energy industry. It will provide multiple services to facilitate stability, reliability, growth, and longevity to energy infrastructure and resources in the state and region.
Lands and Realty	Land Tenure. The BLM would process land exchanges, acquisitions, easements, and potential sales in the planning area on a case-by-case basis as staff and priority workload allow. As opportunities present themselves, each proposal would be reviewed and given careful consideration as to management goals and public benefit. This program is expected to continue to experience occasional levels of activity (BLM 2015b).
	Land Use Authorizations. Applications for ROW authorizations may increase to accommodate development, such as residential development and communication site use, for public safety and homeland security.
Livestock Grazing	Grazing on private lands in the planning area is expected to remain stable or to slightly decrease as residential and recreational development increases. However, as Conservation Reserve Program lands become available and if livestock prices are stable, grazing may increase slightly. Drought and water availability in the planning area has a significant effect on livestock grazing. Construction of range improvement projects on private lands is expected to continue to increase through private funding and other federal programs, such as the Sage-grouse Initiative and Environmental Quality Incentive Program.
Recreation and Visitor Services	Recreation use in the planning area is expected to continue to increase over the life of the plan. In particular, more dispersed recreation, such as hunting, fishing, and hiking, is likely to increase because of the region's diverse hunting opportunities, rural landscape, and clean air and water. National population growth and an abundance of regional employment opportunities in the energy sector are expected to further increase recreation on BLM-administered lands as well as on lands not administered by the BLM. The number of SRPs issued annually is expected to remain steady or to increase slightly.
Travel and Transportation Management	Urban development patterns, the continuing growth of vehicle-based recreation, planned road and highway projects, and population growth are expected to increase demand for, and construction of, transportation routes near the planning area.
	Travel management plans would be completed for the LFO and surrounding field offices.

Reasonably Foreseeable Future Projects, Plans, or Actions	
Vegetation Management	Hazardous Fuels Reduction. Fuels treatments, including prescribed fires, chemical and mechanical treatments, and seeding, would probably continue and could increase in the future. Within the Crooked Creek drainage area, 133,464 acres of federal, state, and private lands have been identified for prescribed burning or mechanical vegetation treatments. Of that acreage, a target of 60,000 acres could be treated during the 10-year life of the area's watershed plan.
	Conifer Removal. Fuels treatments, including planned fires, chemical and mechanical treatments, and seeding, would probably continue and could increase in the future. The Lewis and Clark National Forest has published an intent to prepare an EIS for vegetation management actions in the Castle Mountains in central Montana. The project would restore forest and grasslands ecosystems. This would promote landscape resiliency, over time, for multiple resource values, while minimizing the threat of high intensity wildfire in the Willow Creek municipal watershed and areas of other valued resources and infrastructure in the 69,610-acre Castle Mountains landscape. The Lewis and Clark National Forest also has begun the Elk Smith Project near Chouteau and the Dry Pole Mule Deer Enhancement Project and has planned vegetation treatments for the Upper Sheep Creek drainage.
Forestry	In general, the demand for woodland and forest products in the planning area has increased since 2010. The available volume of salvage harvest timber has increased as a result of fire and insect or disease outbreaks, particularly mountain pine beetle. Recently, market demand for wood products has been moderate to high, but fluctuations in the housing market and advances in biomass use will affect demand over time.
Special Status Species Management	New habitat conservation plans could be developed for currently listed species. If additional species are listed as threatened or endangered, habitat conservation plans also would be developed for their designated habitat.
Water Use	Many of the major streams and watersheds in the planning area are closed to new appropriations of surface water, at least at certain times of the year. The trend of new appropriations of surface water is more than likely downward. Because most surface waters in the planning area are closed to new appropriations, there is likely to be a shift toward groundwater appropriation to accommodate new water demands (DNRC 2014).
Climate	Increased concern over GHG emissions and global warming may lead to future federal and state regulations limiting the emission of associated pollutants. Regulation could include setting significance thresholds for GHGs, such as those proposed in California.
Natural Processes	
Spread of Noxious and Invasive Weeds	Noxious and invasive weed species are expected to continue spreading on all lands. Due to their ability to tolerate certain conditions, some species are expected to remain a serious long-term challenge in the planning area.
Spread of Forest Insects and Diseases	See present actions.
Wildfire and Fuels	The increasing recurrence and severity of drought conditions have been predicted for this area as a result of climate variability. This could, in turn, increase the occurrence and severity of wildfires in the planning area.

Reasonably Foreseeable Future Projects, Plans, or Actions	
Climate	Climate changes over the past 100 years are well documented, and climate variability is expected to continue. Over the past 100 years, annual temperature and precipitation have increased, and climate models predict that they will continue to increase through the twenty-first century. Extreme weather events, such as severe drought and intense rainfall, are expected to increase in frequency as well (NCSL 2008). Increasing annual average temperature and the annual average maximum temperature are evident for both Great Falls and Lewistown (LCAT 2013). While precipitation increased slightly in Great Falls by 0.07 inch per decade, precipitation declined in Lewistown by 0.27 inch per decade (LCAT 2013). DNRC model simulations project warmer temperatures, and most models project modest precipitation increases. As a result of these trends, annual stream flow volumes are expected to stay the same or to increase, depending on the basin and model scenario, with shifts in streamflow timing. The timing shifts would be due to an earlier snowmelt and an increase in the rain fraction of the precipitation during the later winter and early spring. Earlier runoff is projected, with December through March showing an increasing trend, while late season runoff (July through November) shows a decreasing trend. The earlier shift in runoff timing is more predominant for the warmer scenario groupings. Changes in timing may have lesser effects on water use in basins with reservoirs that store spring snowmelt, which can then be released for summer irrigation. Yet reservoirs may take longer to fill, and the timing of releases may need to change to reflect reduced snowmelt and an increase in the portion of precipitation that occurs as rain (DNRC 2014).

W.3 METHODS OF ANALYSIS FOR DIRECT AND INDIRECT EFFECTS

W.3.1 Air Resources and Climate

Indicators of effects on air resources and climate are the following:

- Air pollutant concentrations measured by air monitoring apparatus
- The ability to meet state and federal air quality standards
- The ability for humans to view distant objects and scenes without pollution-induced haze
- The ability to prevent acidification of land and water from pollutant deposition
- Atmospheric GHG concentrations measured by air monitoring apparatus

The analysis is based on the following assumptions:

- The degree of effect due to air pollutant emissions depends on many factors, including meteorological conditions, topography, the type of pollutant, and characteristics (such as temperature and velocity) of the release.
- Air quality improves when air pollutant concentrations are reduced.
- Pollutants entering the atmosphere disperse quickly under most meteorological conditions and may be transported long distances downwind from the release site.
- Ozone and fine particulate may form in atmospheric reactions among other pollutants.
- Air pollutants can be deposited on vegetation, land, water, or structures and some pollutants such as ozone and acids may cause damage.

- Lower quantities of global GHG emissions would reduce the magnitude and speed of climate variability.
- Large quantities of GHGs remain in the atmosphere for many years and have a long-lasting effect on climate.
- GHGs are part of the carbon cycle and continually cycle between air, land, and water.
- Air resource modeling can predict effects on air quality and AQRVs.
- Surface-disturbing actions related to fluid mineral development would comply with Gold Book surface operating standards (and subsequent updates; DOI and USDA 2007).

Emission inventories primarily include BLM sources within the planning area and nonfederal oil and gas activities. A planning area emissions inventory was developed for each alternative; details are provided in the *Lewistown Field Office Resource Management Plan Air Resources Technical Support Document* (BLM 2016).

Nature and Type of Effects

BLM-authorized emission sources that affect air resources and climate variability include fluid mineral development (oil, conventional natural gas, and coal bed natural gas), fire and fuels management (wildfires, prescribed fire, and mechanical vegetation treatment), timber harvest and woodland treatments, and livestock grazing. Effects from criteria pollutant and HAP emissions would decrease quickly when emissions cease or if activities are intermittent. Many soil-disturbing activities have short-term reversible effects. However, effects from GHG emissions would be long term because GHGs remain in the atmosphere for long periods of time. Approximate atmospheric lifetimes have been estimated to be 50 to 200 years for CO_2, 12 years for CH_4, and 120 years for N_2O (EPA 2010). Consequently, GHG emissions could contribute to long-term climate variability.

Activities with known effects on air resources and climate include fluid mineral development and production, wildfire management, forestry, and livestock management.

- Fluid mineral development and production activities would increase criteria air pollutant, HAP, and GHG emissions through engine exhaust (criteria pollutants, HAPs, and CO_2), fugitive VOC and CH_4 emissions from venting and equipment leaks, and fugitive dust (PM_{10} and $PM_{2.5}$) from construction activity and vehicle travel on unpaved roads.
- Wildfire management activities include preventive activities such as forest thinning and prescribed burning, as well as fighting wildfires. Smoke from prescribed burning and wildfires contain large quantities of CO_2, as well as criteria pollutants, HAPs, CH_4, and N_2O. In addition to emissions from smoke, vehicle and equipment exhaust emissions and PM_{10} and $PM_{2.5}$ from vehicle exhaust and travel on unpaved roads would be emitted.
- Forestry and woodland treatments would emit pollutants from equipment exhaust and vehicle travel on unpaved roads.
- Livestock grazing has the potential to affect air quality through land disturbance from grazing animals, land disturbance for range improvements, wind erosion, and vehicle usage to access and transport livestock. Livestock grazing releases large quantities of CH_4, which is approximately 25 times more potent than CO_2 in terms of global warming potential (GWP) over a 100-year time frame (according to EPA regulations).

- During a 20-year time period, CH_4 has approximately 84 times more heat-trapping effect than CO_2 based on the most recent information from the IPCC (IPCC 2014, Box 3.2). However, in order to make consistent comparisons to US and global CO_{2e} emission inventories, emissions provided in this analysis reflect 100-year GWPs of 1, 25, and 298 for CO_2, CH_4, and N_2O, respectively. CO_{2e} can be calculated using other GWPs by multiplying each GHG's emissions by its GWP and then summing the results.

With regard to fire management, prescribed burns are implemented only when atmospheric conditions provide safe fire control conditions and when ambient concentrations of fire-related pollutants would be acceptable. The size of the prescribed fire, and the current and expected weather conditions, including the predicted wind speed and direction, would be reviewed prior to burning to assure good smoke dispersal. Prescribed burns would be completed in a manner that is consistent with procedures established by the Montana/Idaho Airshed Group under the authority of the Montana Open Burning Regulations (Administrative Rules of Montana Title 17, Section 8, Subchapter 6). Wildfire is a natural phenomenon and are not authorized or permitted by BLM. Smoke quantities and pollutant concentrations from wildfire would vary with the amount and type of fuel burned and atmospheric conditions. Wildfires would cause short-term emissions from smoke and the use of heavy equipment during fire suppression activities. Long-term wildfire effects include increased fugitive dust emissions from lack of vegetation.

During large wildfires, $PM_{2.5}$ could spread over many miles and affect areas outside the planning area, including Class I areas and sensitive Class II areas. In addition to increased concentrations of PM, CO, VOCs, and HAPs, large wildfires adversely affect visibility. Individual wildfire effects can last from a few days to several weeks, while effects from multiple fires within the region can occur throughout the fire season.

For the proposed alternatives, the largest BLM criteria pollutant and HAP emission sources would be associated with fire management, fluid mineral development, and livestock grazing. Emission breakdowns by resource are included for each of the alternatives. For most of these resources, emissions would be similar to emissions associated with current levels of activity. For example, forestry would not be expected to increase over current activity levels and emissions from forestry activities would remain relatively constant. Consequently, emissions from these ongoing resource management activities would not represent increases to regional emissions. However, oil and gas activity emissions would reflect increased activity in future years and would add to regional emissions. Oil and gas emission estimates reflect the year with the greatest total emissions from development and production activities.

A list of initial mitigation measures to be applied upon issuance of the ROD is included in the air resource management plan (ARMP) provided in **Appendix F**.

Near-Field Criteria Air Pollutant Concentrations from Oil and Gas Activities

Near-field dispersion modeling was performed to predict air resource effects associated with oil and gas activities, including well drilling, completion with fracking, and well pad construction activities. The near-field modeling represents each of the alternatives because well pads could be clustered in a relatively small area under any of the alternatives, even though the total number of wells changes based on the alternative.

The EPA guideline model for estimating near-field effects is the AERMOD dispersion model, which is suitable for modeling discrete sources of emissions to a distance of 50 kilometers from the source. AERMOD provides conservative estimates of potential air quality effects from these types of sources. Receptors were placed in the modeling domain, which extended at least 3 kilometers from the center of the central well pad. Information describing AERMOD meteorology, modeling parameters, and data processing is provided in the Near-Field Air Quality Assessment Protocol for the Lewistown Field Office Resource Management Plan Revision and Environmental Impact Statement (BLM 2015c). Emission inventories for each alternative and detailed near-field modeling results are provided in the *Lewistown Field Office Air Resources Technical Support Document* (BLM 2016) and summarized below.

Well development activities (construction, drilling, and completion) would be temporary and occur at different times. At a typical well pad, construction would occur first over a period of up to 3 days of active site construction involving soil movement (e.g., digging and grading). Drilling would occur next, with up to 15 days of active drilling. Then well completion (including fracking) would occur for up to 5 days. Once well development is complete, a long-term production phase would begin. Following long-term production, reclamation completed immediately, and if successful, would potentially result in less dust and more oxygen production.

In order to model a wide range of meteorological conditions and the possibility of closely spaced wells, activities were modeled as if they could occur continuously over the 5-year modeling period. A total of five well pads were modeled within the domain. The central pad represented drilling or completion based on whether the drilling or completion scenario was modeled. For each of these two scenarios, three outlying well pads were modeled with emissions representing production activities and the remaining well pad's emissions represented construction activities.

Modeled concentrations were compared to NAAQS, MAAQS, and prevention of significant deterioration (PSD) increments. Comparisons to the NAAQS and MAAQS were performed by summing modeled concentrations with background concentrations (representing current air quality) and comparing the total concentrations to the standards.

Table W-3, Predicted Near-field Oil and Gas Effects on Criteria Pollutant Concentrations, summarizes modeled results by showing the largest modeled and total concentrations based on the two scenarios and 5 years (2009 through 2013). Modeling results for each scenario and modeled year are included in the *Air Resources Technical Support Document* (BLM 2016).

Predicted concentrations would be below the NAAQS and MAAQS for every modeled criteria pollutant, as shown by the percentages in the last column of the table. With one exception, predicted total concentrations would be below 50 percent of NAAQS or MAAQS. The predicted 24-hour PM_{10} concentration is 51 percent of the NAAQS; this concentration would be localized and occur only during construction activities.

Modeled concentrations were also compared to PSD increments, which are designed to prevent good air quality from deteriorating to the level set by the NAAQS. In areas attaining the NAAQS, PSD increment analysis is required prior to construction of a major stationary source of air pollutants that have the potential to emit at least 100 tons per year (tpy) or 250 tpy of a criteria air pollutant. The sources included in this near-field modeling analysis do not meet the definition of a major source of

Table W-3
Predicted Near-field Oil and Gas Effects on Criteria Pollutant Concentrations

Pollutant	Average Period	Model Output Rank	Value (µg/m³)						Percentage of NAAQS or MAAQS (%)
			Modeled Concentration	PSD Increment		Background Concentration[1]	Total Concentration	NAAQS or MAAQS	
				Class I	Class II				
CO	1-hour	H2H	326	None	None	687	1,013	26,450[6]	2
	8-hour	H2H	262	None	None	687	949	10,000	9
NO_2	1-hour	H8H[2]	48.5	None	None	27	75.5	188	36
	Annual	H1H[3]	0.48	2.5	25	1	1.48	94[6]	1
PM_{10}	24-hour	H2H	46.6	8	30	30	76.6	150	51
	Annual	H1H	1.1	4	17	9.3	10.4	50[6]	21
$PM_{2.5}$	24-hour	H8H[4] (H2H)[7]	3.4 (7.8)	2	9	10	13.4	35	38
	Annual	H1H	0.26	1	4	3.9	4.16	12	35
SO_2	1-hour	H4H[5]	3.8	None	None	5	8.8	196	4
	3-hour	H2H	3.2	None	None	5	8.2	1300	1
	24-hour	H2H	0.40	5	91	5	5.4	365[6]	2
	Annual	H1H	0.146	2	20	5	5.1	80[6]	10

H1H = highest-first-high
H2H = highest-second-high
H4H = highest-fourth-high
H8H = highest-eighth-high

[1] Background concentrations were provided in the near-field modeling protocol (BLM 2015c).

[2] 5-year average of the 98th percentile (H8H) 1-hour modeled NO_2 concentrations. Modeled results were post-processed using the 1-hour and annual NO_2 Tier 2 method using 80 percent conversion of modeled NO_x to NO_2.

[3] Post processed using the annual NO_2 Tier 2 method using 75 percent conversion of modeled NO_x to NO_2.

[4] 5-year average of the 98th percentile (H8H) 24-hour modeled $PM_{2.5}$ concentrations.

[5] 5-year average of the 99th percentile (H4H) 1-hour modeled SO_2 concentrations.

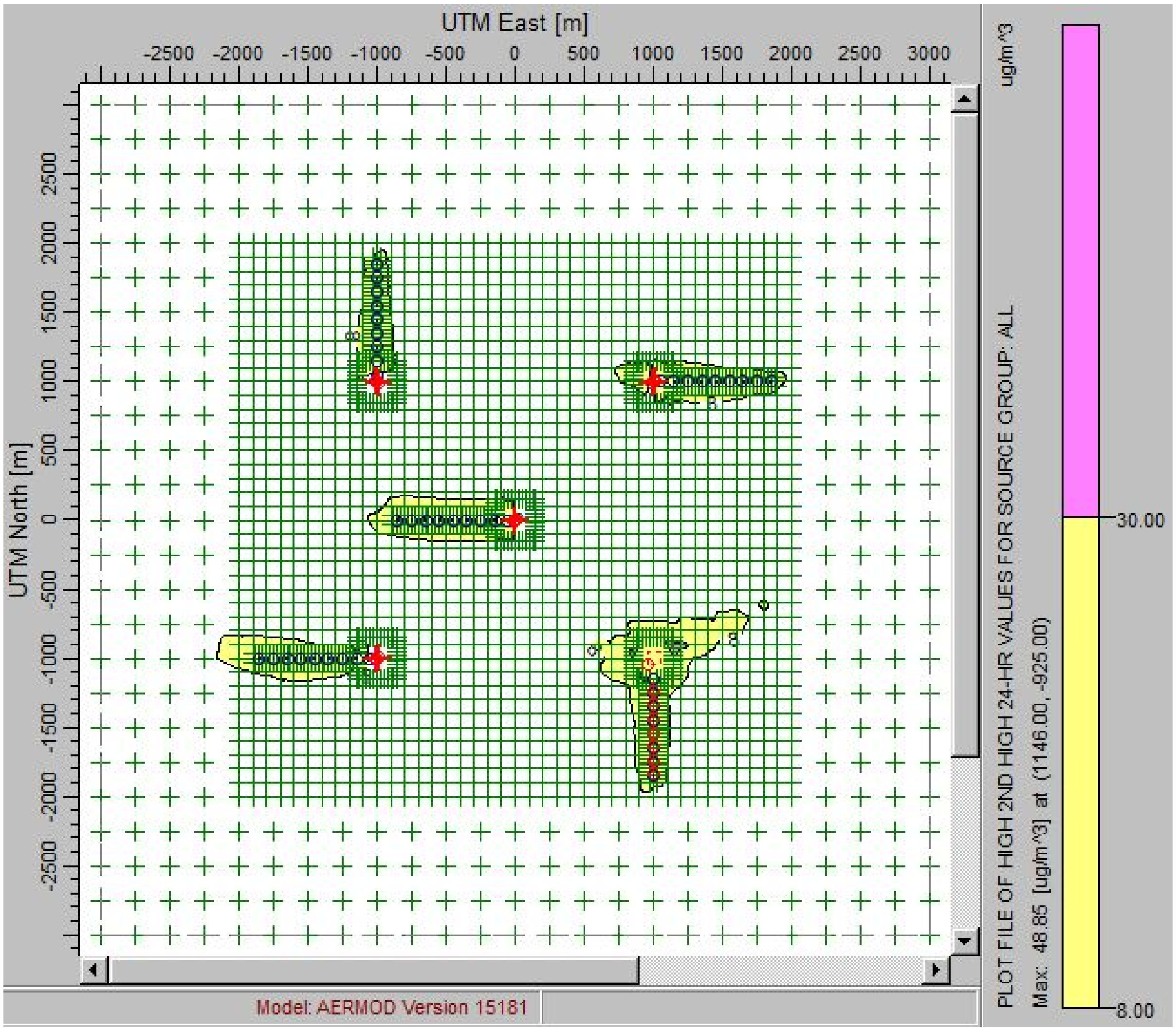
[6] This is a Montana standard.

[7] The H2H rank provided in parentheses is used to compare to the PSD increments, while the H8H rank is compared to the NAAQS.

criteria air pollutants and would not be required to undergo PSD analysis. The following PSD analysis is not a regulatory analysis; its purpose is to provide context for evaluating potential air quality effects.

Air pollutant concentrations generally decrease as distance from the source increases. **Diagram W-1**, Extent of PM_{10} Concentrations Above PSD Increments, provides an illustration of 24-hour PM_{10} modeled concentrations during construction activity. At the bottom right corner of the figure is a well pad with short-term construction activities. The center well pad represents completion activities while the other three well pads are modeled with emissions representing production activity. Red markers indicate emission sources and green markers indicate receptors (points at which concentrations are calculated). Shaded areas indicate the extent of the area for which PM_{10} concentrations are predicted to be greater than the PSD Class I increment (8 μg/m³) or Class II increment (30 μg/m³) on the day with the second-highest particulate matter (PM_{10}) modeled concentration during 2010. Wells would be

Diagram W-1
Extent of PM_{10} Concentrations Above PSD Increments



located in Class II areas and concentrations above the Class II PSD increment are predicted to extend up to approximately 200 meters from the well pad boundary. In order for concentrations to exceed the Class I increment, well pad construction activity would need to be within approximately 700 meters of a Class I area. Concentrations of these magnitudes could occur only on days when well pad construction activity is concurrent with meteorological conditions enabling high ambient PM_{10} concentrations.

Near-field HAP Effects from Oil and Gas Activities

Near-field modeling was also conducted to determine predicted ambient air quality effects of HAP emissions. HAPs are defined by the EPA as toxic air pollutants known or suspected to cause cancer or other serious health effects, such as reproductive effects, birth defects, or adverse environmental effects. Similar to the NAAQS modeling, HAP modeling consisted of construction, drilling, and completion of wells. Modeled effects were compared to established health-based thresholds to determine the incremental increase in risk associated with the proposed activities. Health-based thresholds are established for both short-term (acute, typically 1-hour) and long-term (chronic, 1-year) exposures. The short-term thresholds used in the analysis consisted of acute reference exposure levels and are defined as short-term concentrations at or below which no adverse health effects would be expected. The long-term non-carcinogenic thresholds used in the analysis consisted of chronic reference concentrations and are the threshold at which no long-term, non-carcinogenic adverse health effects would be expected. The long-term carcinogenic thresholds used in the analysis consisted of unit risk factors to estimate the increased risk of developing cancer associated with the ambient concentration of the HAP being analyzed. Six HAPs were modeled (benzene, ethyl benzene, formaldehyde, n-hexane, toluene, and xylene; see **Table W-4**, Health Effects of Modeled Hazardous Air Pollutants).

Table W-4
Health Effects of Modeled Hazardous Air Pollutants

HAP	Short-Term (Acute)	Long-Term (Non-carcinogen)	Long-Term (Carcinogen)
Benzene	X	X	X
Ethyl Benzene	X	X	X
Formaldehyde	X	X	X
N-Hexane	X	X	–
Toluene	X	X	–
Xylene	X	X	–

To estimate the incremental increase in risk, the modeled effects were compared directly to reference exposure levels. **Table W-5**, Predicted Effects on Acute Short-Term Hazardous Air Pollutant Concentrations, presents the results of the acute HAP modeling and illustrates that effects are well below reference exposure levels. Maximum acute effect for each HAP is associated with construction operations. **Table W-6**, Predicted Effects on Chronic Noncarcinogenic Hazardous Air Pollutant Concentrations, presents the results of HAP modeling of potential chronic effects and compares them to reference concentrations.

Of the HAPs evaluated, only benzene, ethyl benzene, and formaldehyde are identified by the EPA as being carcinogens. Unit risk factors for this analysis were derived based on assuming a person is exposed to the HAP for a 70-year lifetime. Cancer risk was estimated by calculating the annual model-predicted concentrations by the unit risk factor for each carcinogen. The resulting calculations were then scaled by

Table W-5
Predicted Effects on Acute Short-Term Hazardous Air Pollutant Concentrations

HAP	Modeled 1-Hour Concentration (μg/m³)	Reference Exposure Levels (μg/m³)	Percentage of Reference Exposure Level (%)
Benzene	3.47	1,300	0.27
Ethyl Benzene	5.40	350,000	<0.1
Formaldehyde	19.6	55	36
N-Hexane	11.5	390,000	<0.1
Toluene	2.50	37,000	<0.1
Xylene	1.76	22,000	<0.1

Table W-6
Predicted Effects on Chronic Noncarcinogenic Hazardous Air Pollutant Concentrations

HAP	Modeled Annual Concentration (μg/m³)	Reference Concentration (μg/m³)	Percentage of Reference Concentration (%)
Benzene	0.030	30	<0.1
Ethyl Benzene	0.14	1,000	<0.1
Formaldehyde	0.033	9.80	0.3
N-Hexane	0.32	700	<0.1
Toluene	0.035	5,000	<0.1
Xylene	0.018	100	<0.1

adjustment factors to represent the most likely exposure and maximally exposed individual risks. The maximally exposed individual adjustment takes into account the lifetime of the project, which was assumed to be 50 years.

The most likely exposure adjustment takes into account the average duration that a family remains at a residence as well as the time spent at home versus time spent elsewhere. **Table W-7**, Carcinogenic Hazardous Air Pollutant Modeling Results for All Alternatives presents the results of the carcinogenic HAP modeling for both the most likely exposure and maximally exposed individual exposure assumptions. Maximum cancer risks were associated with construction operations and were below an incremental increase in cancer risk of 1 per million.

Table W-7
Carcinogenic Hazardous Air Pollutant Modeling Results for All Alternatives

HAP	Modeled Annual Concentration (μg/m³)	Unit Risk Factor (μg/m³) $^{-1}$	Adjustment Factor	Cancer Risk (Per Million)	Risk Exceeds One Per Million?
Most Likely Exposure					
Benzene	0.030	7.80×10^{-6}	0.0949	0.02	No
Ethyl Benzene	0.14	2.50×10^{-6}	0.0949	0.03	No
Formaldehyde	0.033	1.30×10^{-5}	0.0949	0.04	No

HAP	Modeled Annual Concentration ($\mu g/m^3$)	Unit Risk Factor ($\mu g/m^3$)$^{-1}$	Adjustment Factor	Cancer Risk (Per Million)	Risk Exceeds One Per Million?
		Maximally Exposed Individual			
Benzene	0.030	7.80×10^{-6}	0.71	0.16	No
Ethyl Benzene	0.14	2.50×10^{-6}	0.71	0.25	No
Formaldehyde	0.033	1.30×10^{-5}	0.71	0.30	No

Near-field Visibility Effects

Visual effect screening (VISCREEN) modeling assessed plume visibility effects at Class I areas, based on an assumption that a drill rig could be located approximately 1 kilometer from a Class I area boundary and a human observer could be located approximately 1 kilometer from the drill rig and the Class I area. The model predicts effects in terms of a color difference index and a contrast index. As shown in **Table W-8**, VISCREEN Plume Visibility Modeling Results for All Alternatives, predicted effects are less than the following USFWS and NPS thresholds used to identify effects that may potentially pose a visibility concern (FLAG 2010). Modeling was performed for both high visibility (high standard visual range) days and low visibility (low standard visual range) days. Predicted effects are provided for cases when an emission plume could be viewed with the sky as background and when a plume could be viewed with terrain as the background.

- Color difference index: $\Delta E \geq 2.00$
- Contrast: $| C | \geq 0.05$

Table W-8
VISCREEN Plume Visibility Modeling Results for All Alternatives

Class I Area/ Background	Low Standard Visual Range		High Standard Visual Range	
	ΔE	$\vert C \vert$	ΔE	$\vert C \vert$
Gates of the Mountains Wilderness	-	-	-	-
Sky	0.063	0.001	0.072	0.002
Terrain	1.240	0.001	1.368	0.001
UL Bend Wilderness				
Sky	0.045	0.001	0.045	0.001
Terrain	0.881	0.001	0.932	0.001

Emission Comparisons for Regional Assessment

In order to provide context for the emissions, **Table W-9**, Estimated Maximum Annual Criteria Pollutant and GHG Emissions as a Percentage of Existing Emissions, summarizes emissions by alternative as a percentage of calendar year 2011 emissions for planning area counties based on the EPA National Emissions Inventory (EPA 2015). Generally, emissions for each alternative are a small percentage of existing emissions for counties within the planning area, although emissions of non-particulate fire emissions are high relative to existing emissions.

The table provides comparisons with and without wildfire smoke emissions because the National Emissions Inventory (NEI) includes emissions from wildfire smoke as well as prescribed fire for 2011 and the BLM emissions inventory for the planning area includes emission estimates for future prescribed fire

Table W-9
Estimated Maximum Annual Criteria Pollutant and GHG Emissions as a Percentage of Existing Emissions

Alternative	**Percentage of Total Emissions Within Planning Area Counties (%)**[1]								
	CO	**NO_x**	**VOC**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**	**CH_4**	**N_2O**
Alternative Emissions for Activities Excluding Wildfire Smoke [2, 3, 4]									
A	0.2	0.3	<0.1	0.5	0.5	0.3	22	93	24
B	0.1	0.3	<0.1	0.3	0.4	0.2	22	48	24
C	0.1	0.3	<0.1	0.2	0.4	0.2	22	91	24
D	0.1	0.3	<0.1	0.3	0.5	0.2	22	103	53
Alternative Emissions for Activities Including Wildfire Smoke[2, 3, 4]									
A	68	11	5.4	0.3	0.6	0.9	20	48	24
B	68	11	5.3	0.3	0.7	0.9	20	25	24
C	51	9.7	4.2	0.2	0.5	0.8	20	47	24
D	68	11	5.3	0.3	0.6	0.9	20	53	53

[1] Counties included in the National Emission Inventory (NEI) comparison include Cascade, Chouteau, Fergus, Judith Basin, Meagher, Petroleum, Pondera, and Teton Counties.

[2] Wildfire smoke is excluded from some comparisons because of its high variability from year to year in the National Emissions Inventory.

[3] Most of the emissions are from activities that are already occurring; therefore, they do not necessarily represent an increase in emissions over current emission inventories.

[4] The NEI includes GHG emissions for prescribed fires, wildfires, and mobile sources only and is not directly comparable to estimated emissions inventory constructed for BLM activities within the planning area.

actions only. Wildfire smoke emissions are difficult to estimate due to variations in the number and locations of fires from year to year, large differences in the amount of biomass burned, and the meteorological conditions during each wildfire. The bulk of CO, CO_2, CH_4, and N_2O emissions included in the 2011 NEI derive from wildfire smoke. The percentage of estimated N_2O emissions relative to existing (2011) emissions is high because the NEI does not include N_2O emissions from wildfire smoke. The high percentage of CH_4 emissions when excluding wildfire smoke is due to the NEI's omission of CH_4 emissions from livestock grazing, oil and gas development, and other activities that are included in the estimated emissions inventory for BLM authorized activities.

Far-field Criteria Air Pollutant and AQRV Effects

Photochemical grid modeling is the best modeling method to determine far-field criteria pollutant and AQRV (e.g., visibility and deposition) effects for large modeling domains such as the planning area. This type of modeling can predict long-range regional transport of air pollutants into the planning area and can predict the effect of atmospheric reactions forming ozone and secondary particulate that affect visibility. Reliable photochemical grid modeling requires comprehensive regional emission inventories and ambient monitoring data throughout the 48 contiguous United States.

As described in the ARMP (**Appendix H**), the BLM initiated an oil and gas emission inventory and a comprehensive photochemical grid modeling study for the Montana and Dakotas region. Photochemical grid modeling results will provide quantitative predictions of air quality effects from oil and gas activities and other activities throughout the planning area and the surrounding region. This modeling is expected to be completed between release of the Draft and Final RMP/EIS. For the Draft RMP/EIS, the following qualitative analysis is provided based on maximum emission increases excluding smoke emissions.

- Carbon monoxide: With existing CO concentrations of approximately 3 percent of the 1-hour NAAQS, the maximum 0.2 percent increase in emissions due to BLM-authorized activities would cause a negligible effect on air quality.
- Nitrogen dioxide: With existing NO_2 concentrations of approximately 14 percent of the 1-hour NAAQS, the maximum 0.3 percent increase in emissions would cause a negligible effect on air quality with regard to NO_2 and ozone concentrations and a negligible effect on visibility and deposition.
- Ozone: Existing ozone concentrations are approximately 64 percent of the 8-hour NAAQS based on available 2012-2014 monitoring data from Lewistown. Maximum precursor emission increases of 0.3 percent for NO_x and less than 0.1 percent for VOCs would cause a negligible effect on ozone concentrations.
- Particulate matter: With existing PM_{10} concentrations of approximately 20 percent of the 24-hour NAAQS, the maximum 0.5 percent increase in emissions would cause a negligible increase in PM_{10} concentrations, visibility, and deposition.
- Fine particulate matter: With existing $PM_{2.5}$ concentrations of approximately 29 percent of the 24-hour NAAQS, the maximum 0.3 percent increase in emissions would cause a negligible increase in $PM_{2.5}$ concentrations, visibility, and deposition.
- Lead: Lead emission increases would be negligible and would have a negligible effect on lead concentrations in the planning area.
- Sulfur dioxide: With existing short-term SO_2 concentrations of approximately 3 percent of the 1-hour NAAQS, the maximum 0.5 percent increase in planning area emissions would cause a negligible effect on SO_2 concentrations, visibility, and deposition.

Air Resource Management Plan and Adaptive Management Strategy for Oil and Gas Resources

The ARMP for oil and gas activities is provided in **Appendix H**. The ARMP describes the air quality adaptive management strategy that would be used to assess future air quality and AQRVs. The goal of the strategy is to maintain the good air quality that the population in the planning area currently enjoys. By assessing monitored and modeled air resource and AQRV effects, the BLM can identify mitigation measures to address unacceptable effects that may be associated with future oil and gas development. As described in the ARMP, the BLM would work with the MDEQ and the Air Quality Technical Workgroup to identify successful strategies to address air quality and AQRV concerns.

The adaptive management strategy focuses on oil and gas activity because aggregated emissions from multiple small sources at well sites can potentially cause substantial air quality and AQRV effects under certain circumstances. Many of these emission sources are regulated by the MDEQ, which implements air quality permitting and facility registration programs for oil and gas facilities that have the potential to emit 25 tpy or more of any regulated air pollutant. These programs include emission control requirements, which are summarized in Section 1.5.2 within the ARMP. Some types of temporary sources (such as drill rig engines) and oil and gas facilities with potential emissions less than 25 tpy may not be subject to regulatory controls imposed by the MDEQ. The adaptive management strategy provides the BLM with a means to address air quality or AQRV concerns that could occur due to emissions from unregulated sources or aggregated emissions from many closely-spaced sources.

The oil and gas adaptive management strategy was prepared in collaboration with the EPA and three federal land management agencies under the *Understanding Among the USDA, US Department of the Interior, and US Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Process* (USDA, DOI, and EPA 2011). This MOU is summarized in the ARMP in **Appendix H**.

The ARMP includes both near-term actions and long-term actions. In the near term, the ARMP sets forth initial mitigation measures to maintain good air quality until regional photochemical grid modeling can be completed in 2016 to further assess potential effects on air quality (including ozone) and AQRVs. In the longer term, the ARMP provides ongoing management strategies to assess and adapt to new air quality and AQRV ambient monitoring and modeling data during the life of this RMP.

The ARMP includes the following activities:

- Oil and gas activity assessment
- Ambient air quality monitoring support
- Air quality and AQRV assessment
- Future air quality and AQRV modeling
- Mitigation

Pollutants addressed by the ARMP include CO, NO_x, ozone, PM_{10}, and $PM_{2.5}$. The ARMP also addresses modeling and mitigation for the following AQRVs:

- Deposition of sulfur and nitrogen
- Lake acid neutralizing capacity
- Visibility

The adaptive management strategy for oil and gas resources provides the flexibility to respond to changing conditions that could not be predicted during RMP development. The strategy also allows for the use of new technology and methods that may minimize or reduce effects.

Climate Drivers and Air Quality Effects from Climate Variability

GHG emissions contribute to climate variability; these substances drive climate variations. Climate variability also affects air quality and many other resources. Air quality effects from climate change may include increases in ambient ozone concentrations and increases or decreases in particulate matter concentrations. Increased temperatures associated with climate variability have the potential to increase ground-level ozone formation. Climate variability also has the potential to increase emissions of ozone precursors, such as increased fugitive source VOC emissions. The potential cumulative effect of climate variability on PM10 and PM2.5 is less well understood. A range of increases and decreases in PM10 and PM2.5 concentrations may occur in different regions, and for different component chemical species in the same region. For example, climate variability that involve increased precipitation would decrease fugitive dust emissions while drier soils (particularly during the summer and fall) would increase fugitive dust emissions.

Due to the inability to accurately model the effects of local GHG emissions on local climate effects, this analysis provides estimates of GHG emissions associated with the alternatives and compares these emissions to state, national, and global GHG inventories. GHG emissions were estimated using methodologies similar to those used for criteria air pollutants and included GHG emissions that would be directly emitted from sources related to fluid mineral development, fire management, forest and woodland treatments, and livestock grazing. The emission estimates reflect GHG emissions from BLM-authorized activities occurring within the planning area. GHG emissions from wildfires were estimated and are reported in the Air Resources Technical Support Document (BLM 2016).

GHG emission inventories developed as part of this analysis are expressed in short tons because emission factors used to calculate emissions were available in units of pounds and short tons. However, state, national, and global emission inventories are typically provided in terms of metric tons per year (mtpy). Consequently, GHG emissions provided in this section are also given in terms of mtpy in order to compare alternative emissions with other GHG inventories.

Soil disturbance occurs with many BLM-authorized activities, including oil and gas development and production, fire management, forestry, and livestock grazing. GHGs, primarily CO2, are stored in soil, plant foliage, roots, and soil microbes and insects as part of the natural carbon cycle. Soil and vegetation are known as carbon sinks because they remove GHGs from the atmosphere and store (sequester) them. Activities that disturb soil and remove vegetation can release CO2 into the atmosphere and reduce future CO2 sequestration in soil and plant matter. However, once site reclamation occurs and new vegetation grows, CO2 uptake into soil and plant matter increases. GHG emission inventories for surface-disturbing activities include GHG emissions released by equipment and vehicles but do not include estimates of GHG emissions and GHG sequestration from changes in soil and plant matter. Methods for accurately estimating planning area soil and plant matter GHG releases to the atmosphere and GHG uptake from the atmosphere are not available.

Diesel combustion particulate and black carbon (soot) emissions from forest fires and other sources contribute to climate variability by reducing the reflectivity of the earth's surface and increases criteria pollutants and HAPS. This effect is greatest when black carbon is deposited on snow because the darker surface absorbs more sunlight, melts the snow more quickly, and heats the earth's surface. Black carbon effects on climate are modeled on a global basis, but it is not feasible at this time to model local changes in black carbon emissions to determine effects on climate in the planning area.

Downstream emissions from the combustion of produced oil and gas are presented in **Table W-10** as CO2e on both the 100 and 20 year time horizons. Emission calculations assume that 100% of produced oil and gas is consumed for domestic energy and heating purposes. Emission factors from the EPA Center for Corporate Climate Leadership (https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf). Baseline emissions are calculated from existing oil and gas production amount in the planning area. Estimated future emissions are based on reasonable foreseeable production information for each alternative. Existing baseline emissions in the planning area produce 2,142 metric tons CO2e per year. Without considering the effects of the protest resolution settlement agreement, Alternative A would have the highest projected emissions, potentially adding an additional 1,912 metric tons CO2e per year to the baseline.

Table W-10
BLM Fossil Fuel Combustion Greenhouse Gas Emissions by Alternative

Alternative	Emission	Production (bbl,mcf)	Emissions (mtpy)			100-yr CO2e (mtpy)	20-yr CO2e
			CO2	CH4	N2O		
Baseline	Oil	20437	1580	0.06	0.01	1585	1588
	Natural Gas	10111	556	0.01	0.00	557	557
	Total Emission	**–**	**2,136**	**0.07**	**0.01**	**2,142**	**2,145**
Alternative A	Oil	18247.3214	1,410	0.06	0.01	1,415	1,418
	Natural Gas	9027.67857	497	0.00	0.00	497	497
	Total Emission	**–**	**1,907**	**0.06**	**0.01**	**1,912**	**1,915**
Alternative B	Oil	12773.125	987	0.04	0.01	991	992
	Natural Gas	6319.375	348	0.01	0.00	348	348
	Total Emission	**–**	**1,335**	**0.05**	**0.01**	**1,339**	**1,341**
Alternative C	Oil	14962.8036	1,157	0.05	0.01	1,161	1,163
	Natural Gas	7402.69643	407	0.01	0.00	408	408
	Total Emission	**–**	**1,564**	**0.05**	**0.01**	**1,568**	**1,571**
Alternative D	Oil	14232.9107	1,100	0.04	0.01	1,104	1,106
	Natural Gas	7041.58929	387	0.01	0.00	388	388
	Total Emission	**–**	**1,488**	**0.05**	**0.01**	**1,492**	**1,494**

1) Assumes 100% of produced oil and gas is combusted for domestic heating and power generation

Additional Cumulative Effects Assumptions

The *Air Resources Technical Support Document* (BLM 2016) provides emission inventory calculations for cumulative fluid mineral activities based on reasonably foreseeable development within the planning area. Cumulative criteria pollutant and AQRV (e.g., visibility and deposition) effects will be quantitatively predicted using results from the BLM's Montana and Dakotas photochemical grid modeling study, which is expected to be completed between release of the Draft and Final RMP/EIS.

For the Draft RMP/EIS, the following qualitative analysis is provided based on maximum emission increases from cumulative oil and gas activities (federal and nonfederal) and other BLM-authorized activities excluding smoke emissions.

- Carbon monoxide: With existing CO concentrations of approximately 3 percent of the 1-hour NAAQS, a maximum 1 percent increase in cumulative CO emissions would cause a negligible effect on air quality.
- Nitrogen dioxide: With existing NO_2 concentrations of approximately 14 percent of the 1-hour NAAQS, the maximum 3 percent increase in cumulative emissions would cause a negligible effect on air quality with regard to NO_2 and ozone concentrations and negligible effect on visibility and deposition.
- Ozone: Existing ozone concentrations are approximately 64 percent of the 8-hour NAAQS based on available 2012-2014 monitoring data from Lewistown. Maximum precursor emission increases of 3 percent for NO_x and less than 0.2 percent for VOCs would cause a negligible effect on ozone concentrations.
- Particulate matter: With existing PM_{10} concentrations of approximately 20 percent of the 24-hour NAAQS, the maximum 1 percent increase in cumulative emissions would cause a negligible increase in PM_{10} concentrations, visibility, and deposition.

- Fine particulate matter: With existing $PM_{2.5}$ concentrations of approximately 29 percent of the 24-hour NAAQS, the maximum 1 percent increase in cumulative emissions would cause a negligible increase in $PM_{2.5}$ concentrations, visibility, and deposition.
- Lead: Lead emission increases would be negligible and would have a negligible effect on lead concentrations in the planning area.
- Sulfur dioxide: With existing short-term SO_2 concentrations of approximately 3 percent of the 1-hour NAAQS, the maximum 3 percent increase in planning area emissions would cause a negligible effect on SO_2 concentrations, visibility, and deposition.

W.3.2 Soil Resources

Indicators of effects on soil resources are the following:

- Declining soil health and productivity, expressed as a loss of vegetation ground cover, soil organic matter, or nutrient depletion or a change in porosity, fertility, and resistance to erosion
- Acres of BLM-administered land protected from, or open to, surface-disturbing activities
- Acres of BLM-administered land with sensitive soils protected from, or open to, surface-disturbing activities
- The ability to meet Standards for Rangeland Health (BLM 1997)

The analysis is based on the following assumptions:

- Soil condition inventories were not completed. Estimates were made concerning the significance of these resources based on previous surveys and existing knowledge.
- Soils on BLM-administered lands will be managed to maintain inherent productivity and to promote sustained yields, while keeping surface disturbance, including erosion, compaction, and displacement, at minimal acceptable levels, thus preventing degradation. The BLM will analyze proposed surface-disturbing projects to determine the suitability of soils to support or sustain such projects, which will be designed to minimize soil loss.
- Achieving or maintaining Standards for Rangeland (BLM 1997) (described in Section 3.3.2) generally are effective in managing the effects on soils from livestock grazing. Grazing authorizations will be adjusted on a case-by-case basis when site-specific studies indicate changes in management are needed.
- BLM management actions and objectives will be consistent with soil resource capabilities.
- As slopes approach 30 percent, the risk of soil instability following disturbance increases, particularly if cover, structure, permeability, or bulk density has been altered (Monsen et al. 2004).
- Soils with high erodibility have a significantly lower probability of success for restoration than soils with less erosion potential.
- It is impossible to predict when or where the surface disturbance would occur in the planning area; therefore, unless the surface use is not allowed, the assumption is that sensitive soils, badlands, or rock outcrops would be disturbed.
- Within 2 to 5 years of reclamation, vegetation cover and rates of erosion would return to conditions before disturbance (BLM 2008b). Exceptions to this timeline are sites poorly suited to reclamation, which would require unconventional or site-specific reclamation.

- Fuels projects and planned or unplanned fires that contribute to establishing a more natural fire regime would provide for long-term soil health and productivity.
- Concentrated, open OHV use results in compaction, accelerated erosion, reduced ground cover, infiltration, nutrient cycling, and organic matter deposition (BLM 2003; Bainbridge 2007), particularly in areas of highly erodible soils. OHV use on slopes greater than 25 percent would have a severe risk of accelerated water erosion (NRCS 1998). All surface-disturbing activities include mitigation, standard operating procedures, and BMPs to reduce effects on soil resources; these would be addressed at the site-specific project level. Erosion controls and other mitigation measures would effectively mitigate soil erosion.

Nature and Type of Effects

Restricting surface-disturbing activities would preserve soil components by prohibiting human effects. This would inherently improve soil health and productivity by increasing vegetation ground cover, soil development, soil organic matter, fertility, and water-holding capacity and by reducing soil loss from wind and water erosion. Although, conversely, this same prohibition would prevent resource benefits from human activities; this would decrease soil productivity where soil resources have been disturbed, for example riparian improvement projects on a degraded system.

Surface-disturbing management actions would reduce ground cover or soil mixing, compaction, or removal; they would expose the soil resource to accelerated wind and water erosion and the irretrievable loss of topsoil and nutrients. This disturbance would also change soil structure, heterogeneity (variable characteristics), temperature regimes, nutrient cycling, biotic richness, and diversity. Surface-disturbing activities that result in soil compaction would increase in bulk density and would reduce porosity, infiltration, moisture, air, nutrient cycling, productivity, and biotic activity (Perrow and Davy 2003; Bainbridge 2007). Altering such characteristics would reduce the soil system’s ability to adapt to climate variability and to withstand future disturbances. Soils can take decades to hundreds of years to recover from the effects of altered pH and reduced soil stability, organic matter content, microbial mass, biotic richness and diversity, and phosphorus and nitrogen content (Perrow and Davy 2003). This soil recovery time frame following disturbance would be accelerated by mitigation and reclamation under all alternatives and would increase natural recovery rates (Perrow and Davy 2003). Management of the WSA would provide site-specific protections for soils.

In general, fish and wildlife management would reduce effects on soil resources by continuing to maintain and enhance suitable habitat for all wildlife species, with an emphasis on present and potential habitat for nesting waterfowl and fisheries. Under this management, vegetation necessary for preserving soil stability and preventing erosion would be maintained. Minimizing or preventing road and trail development in crucial big game and upland bird habitat areas would protect these areas from direct vegetation removal and soil disturbance. Since crucial big game and upland bird habitat are found throughout the planning area, this management would affect soils and sensitive soils where the habitat occurs.

Direct effects on soil resources may include vegetation loss, conversion, and fragmentation. Vegetation removal could affect the extent and distribution of ground cover (e.g., litter, live and standing dead vegetation, and macrobiotic crusts) and may influence soil stability (Ziemer 1981).

Decreased soil stability may increase erosion and soil loss, which can result in a decline in soil health and productivity, reducing the soil's ability to support vegetation and biological soil crust communities, where affected. These effects can be magnified where the soil is classified as sensitive (areas with severe wind erosion susceptibility, severe or very severe water erosion susceptibility, low restoration potential, or soils in badlands or on rock outcrops). Direct effects from resource uses on biological soil crusts would be similar to soils without biological crusts, with the additional loss of microbes and fragmentation of the biological soil crust community.

Direct effects primarily occur on soil resources through the development or use of other resources. Soils in the planning area are effected by a variety of surface uses or effects, such as livestock grazing on livestock allotments, mineral resources development, OHV use, timber harvesting, ROW development, wildfire suppression, and the use of prescribed fire to reduce fire risk. Additionally, soils are effected by natural processes, such as wildfire, followed by high intensity rainstorms. As a result, localized effects on soil resources may occur, such as a loss of vegetation ground cover, fragmentation of biological soil crusts, gullies and head cuts or sheet erosion, mass wasting, and loss of soil productivity and fertility.

Effects on soil resources may be prevented by land management that results in resource use restrictions, such as surface-disturbing limitations due to ACEC or wilderness designation, VRM management, or fish and wildlife habitat preservation. Applying VRM Class I to BLM-administered lands would preserve the character of the landscape, so soil disturbance would be minimal, which would preserve soil stability and productivity. Lands classified as VRM Class IV are generally managed for more landscape modifications, which would result in surface-disturbing activities that would affect soil resources through vegetation clearing, erosion, and compaction due to low levels of scenic quality and a lower sensitivity of the area.

VRM Class I and Class II would restrict surface-disturbing activities and prevent substantial changes to the landscape. Areas managed as VRM Class III would allow for more changes to the landscape and, therefore, greater surface disturbance and likelihood for vegetation fragmentation, weed invasion and spread, and increased erosion rates.

Stipulations for fluid minerals leasing (**Appendix L**), and BMPs and mitigation measures for authorized land uses or activities (**Appendix F**) would restrict surface-disturbing activities, which would reduce the likelihood of vegetation removal, soil disturbance, compaction, and biological soil disturbance, where applicable. Additionally, restrictions on resource uses for habitat preservation and ACEC management or to preserve lands with wilderness characteristics would inadvertently protect soil resources.

Soils are also effected indirectly through drought and climate variability. In drought year, soil moisture availability declines, which reduces nitrogen availability, nutrient mobility, and vegetation biomass and root growth (Purrington et al. 1993). If drought persists, then native plants can die out and water resources can dry up, which destabilizes soils and can increase soil erosion (Mitchell 2010).

Climate variability effects are similar to drought. Increased temperatures may result in future decreases in soil moisture and vegetation cover (Karl et al. 2009). Soils whose moisture retention capacity has been reduced would undergo further drying by warming temperatures and drought and become even more susceptible to wind erosion (Sankey et al. 2009). Decreased precipitation may result in vegetation density declines, increasing the amount of bare ground, destabilizing soils, and resulting in increased soil erosion from wind and water during precipitation (Puckett 2015).

Much of the planning area is open to grazing (see **Table 4-11**, Alternatives Comparison of Livestock Grazing on Sensitive Soils). Properly managed grazing can be used as a tool to reduce fuel load, to protect intact vegetation habitat, and to increase habitat extent and continuity (Adams et al. 2004). Intact habitat and proper vegetation cover would stabilize soils in these areas, reducing wind and water erosion potential. Land health evaluations are used to assess rangeland condition and help to identify where changes in grazing management would be beneficial. In areas meeting Standards for Rangeland Health (BLM 1997), grazing practices coexist with healthy vegetation communities, and therefore healthy soils and biological soil crust communities.

Effects from poorly managed livestock grazing would be greater in magnitude and extent than those from properly managed grazing and include loss of vegetation cover, reduced water infiltration rates and nutrient cycling, decreased plant litter on the soil surface, increased soil erosion, changes to species composition, and reduced vegetation vigor (Connelly et al. 2004; Knick et al. 2011; Manier et al. 2013).

Areas of high-density grazing, such as around water developments, are subject to soil compaction. The construction of water developments would permanently remove vegetation in the development's footprint and would concentrate livestock effects in certain areas (Braun 1998). Livestock congregation may increase soil compaction and soil disturbance. However, range improvements may lessen the individual effects of livestock at any one water source because the congregation effects are spread to more areas. Building fences and installing water tanks or other livestock-related infrastructure can also disturb the soil but would disburse livestock, reducing vegetation trampling and soil compaction.

Timber harvesting can affect soil resources from building roads and trails and from removing vegetation, which protects the soil surface from erosion. Activities associated with timber harvesting can cause soil compaction and displacement, surface runoff concentration, and soil surface exposure. Areas closed to timber management would prevent these effects on the soil resources within them. Timber harvesting is not likely to affect biological soil crusts because they do not usually occur in forest vegetation communities.

Table 4-12, Alternatives Comparison of Timber Management on Sensitive Soils, provides a summary of areas closed to timber management by alternative and a summary of areas closed to timber management overlapping sensitive soils by alternative.

Building roads, campgrounds, or recreation facilities can result in long-term soil disturbance. Designating recreation areas can concentrate effects on soils in the designated area but would also reduce dispersed effects from recreation on the landscape. Additionally, designated recreation area management may prevent soil degradation by managing cases of erosion and soil productivity loss as they occur.

OHV use has the potential to damage vegetation cover, resulting in soil rutting, runoff concentration, and increased soil erosion. Areas that are closed to OHV travel would be protected from these effects. Areas that are designated as limited to existing roads and trails would concentrate effects on soils in certain areas, while reducing effects on soils in other areas if users stay on designated trails.

Table 4-13, Alternatives Comparison of Travel Management on Sensitive Soils, compares OHV designations by alternative and the OHV designations overlapping sensitive soils by alternative. **Table 4-14**, Alternatives Comparison of Land Use Authorizations on Sensitive Soils, compares ROW designations in the planning area and overlapping sensitive soils.

ROW development can include a number of surface-disturbing activities, such as road building or construction site trenching and clearing. ROW effects can have a temporary disturbance for laydown yards and construction zones and a permanent disturbance of the ROW feature, usually a road or transmission line.

Disturbance related to ROW development includes vegetation removal and clearing, soil compaction during removal, and soil destabilization and increased erosion due to vegetation removal. If these areas overlap with biological soil crusts, then additional effects would be biological community fragmentation and loss. Areas that are managed as ROW avoidance may see reduced disturbance from ROW authorizations and effects on soils, and areas managed as ROW exclusion would be protected from these effects on soils.

Table 4-15, Alternatives Comparison of Fluid Minerals Development Stipulations on Sensitive Soils, provides a comparison of fluid mineral lease stipulations in the planning area and overlapping sensitive soils.

Fluid mineral development generally requires both permanent and temporary roads, drilled wells, and associated well pads. In addition, it may require associated pipelines and transmission lines and the necessary service roads for these facilities. Local soil and biological soil health, productivity, and characteristics in project footprints are typically effected by compaction and vegetation clearing, which destabilize soils, compact them during vegetation removal, and may increase erosion due to the lack of stabilizing vegetation cover.

Direct and indirect effects of fluid mineral development on soil resources are generally best mitigated by avoiding or minimizing the effects to the degree practicable with fluid mineral stipulations, such as NSO and CSU. Effects from mineral development are regulated and mitigated through federal and state laws, as well as handbooks, stipulations, and conditions of approval, which can reduce the amount of soil disturbance on a case-by-case basis.

Table 4-16, Alternatives Comparison of Mineral Development on Sensitive Soils, provides a comparison of mineral development in the planning area and overlapping sensitive soils.

Locatable mineral, mineral material, and nonenergy leasable mineral activities require road construction and soil excavation. Local soil health, productivity, and characteristics in project footprints are typically effected through excavation, compaction, erosion, and vegetation clearing. These activities destabilize soils, locally compact them during vegetation removal, and may increase erosion due to the lack of stabilizing vegetation cover. Once mineral extraction is complete, restoration and restoring vegetation may result in a lower level of soil health and productivity over the long term.

Nonenergy solid leasable mineral interest primarily consists of prospecting for diamonds and garnets, and this level of interest is anticipated to stay the same for the life of the RMP. This type of activity would have site-specific effects on soil resources.

Resource management actions include a range of land management activities that would promote natural soil structure and function. These actions are those that maintain, conserve, or improve vegetation conditions, including managing for PFC, riparian buffers, forest resilience, special status species plants, and range or wildlife habitat improvements. Although some treatments would disturb the surface in the short term, such treatments would promote nutrient cycling, soil development, soil biodiversity, and site stability in the long term.

Fire and fuels management could cause short-term or long-term changes to the species composition and conditions of all vegetation communities (Brown and Smith 2000). In the short term, fire and fuels management removes vegetation and causes bare areas to be more susceptible to soil loss or weed invasion, thus increasing the relative cover of understory invasive species (Keeley et al. 2003). In the long term, fire and fuels management reduces dense vegetation and standing biomass, modifies vegetation mosaics, vegetation structure, and herbaceous understory, and alters nutrient cycling rates and patterns (Reich et al. 2001). The increase in soil nutrients following wildfire and prescribed fire may favor some invasive plant species.

Prescribed fire and wildfire results in the temporary removal of vegetation and biological soil crusts, which can increase soil erosion. Shrubs, forbs, grasses, trees, and the litter layer break up the intensity of severe rainstorms, reducing the potential for water erosion of soils. Plant roots stabilize the soil, and stems and leaves slow the water to give it time to percolate into the soil profile. Fire can temporarily remove this soil protection (CSU 2012).

Wildfires may burn hot enough to kill soil organisms and root systems, resulting in diminished plant recruitment and growth rates, depending on the size, extent, and quantity of fuel available (Graham et al. 2004). The loss of soil organisms reduces the soil's ability to support plant growth by altering the soil pH and reducing nitrogen fixation (CSUE 2014). Reduced vegetation cover and biological soil crusts leaves open areas at risk for increased rates of wind erosion and noxious weed encroachment. After a wildfire, soils may become hydrophobic, which increases soil instability and may result in increased erosion and mass movement if precipitation were to occur.

Additionally, vehicles and heavy equipment used to suppress wildfires can disturb and compact the surface, concentrate surface runoff, and increase soil erosion. These activities have the potential to create both short-term and long-term effects on soils.

There are nonnative and invasive species infestations in the planning area, and they are expected to increase. Infestations can alter soil health and productivity, although this depends on other factors, such as soil disturbance and climatic conditions. Invasive plants can damage native plant and animal communities by significantly changing composition, structure, or ecosystem function and increasing soil erosion and sedimentation (Westbrooks 1998). Control of nonnative and invasive species would stabilize soils due to the re-establishment of native stabilizing vegetation communities.

Reclamation is the reconstruction of topographic, soil, and plant conditions after disturbance, which permits the degraded land mass to ecologically function (Munshower 1994) and maintain soil productivity. Disturbed areas should be returned to some type of stable ecosystem (not actively eroding) as rapidly as possible (Munshower 1994). Reclamation is not the restoration of a site; instead, the long-term objective is to set the course for eventual ecosystem restoration.

Surface-disturbing activities carry more erosion risks in areas of low reclamation potential, areas with sensitive soil, and areas with biological soil crusts. Examples of low reclamation potential are soils with severe wind erosion susceptibility, severe or very severe water erosion susceptibility, low restoration potential or soils in badlands or on rock outcrops. Disturbance in all these areas creates greater potential for erosion, thereby degrading soil quality and productivity. These effects can be short term or long term, depending on the type and amount of surface disturbances and local conditions.

Soil restoration is the return of an ecosystem to a close approximation of its condition prior to disturbance. Restoration potential is based on soil resilience, which is the inherent ability of the soil to recover from degradation, or the ability to restore functional and structural integrity after a disturbance. Important soil functions are as follows:

- Sustaining biological activity, diversity, and productivity
- Capturing, storing, and releasing water
- Storing and cycling nutrients and other elements
- Filtering, buffering, degrading, immobilizing, and detoxifying contaminants
- Providing support for plant and animal life

Factors that affect reclamation suitability are as follows (BLM 2014b):

- Relative risk of water and wind erosion, salinization, organic matter, and nutrient depletion
- Precipitation
- Excess steepness or coarse fragments that limit common rehabilitation practices
- Topsoil loss
- Loss of adequate rooting depth required to maintain desired plant communities

W.3.3 Water Resources

Indicators of effects on groundwater and surface water resources are the following:

- Exceedance of state and federal water quality standards for surface water and groundwater
- Alteration of the physical characteristics of watersheds, streams, riparian and wetland areas, and groundwater aquifers to a point that they no longer achieve the BLM's resource objectives or are no longer sustainable or functioning properly
- Depletion of water supplies beyond the level needed to achieve BLM resource objectives
- Changes to surface water impoundments

This analysis is based on the following assumptions:

- Water condition inventories were not completed specifically for this analysis, but existing data from multiple sources are included. Although this is believed to be the best available data, there is still inherent uncertainty in some of the estimates, and there may be data gaps. Therefore, much of the data in this analysis is intended to be used for general guidance, instead of site-specific analysis.
- Projects that help restore watersheds, desirable vegetation communities, or wildlife habitats (including surface disturbance associated with these activities) would benefit water resources over the long term.
- The degree of effect attributed to any one disturbance or series of disturbances would be influenced by several factors, including proximity to drainages and groundwater wells, location in

the watershed, time and degree of disturbance, reclamation potential of the affected area, vegetation, precipitation, and mitigating actions applied to the disturbance.

- Fuels projects and planned and unplanned fire that contribute to establishing a more natural fire regime would have long-term benefits on water quality.
- Surface-disturbing actions related to fluid mineral development would comply with Gold Book surface operating standards (and subsequent updates; DOI and USDA 2007).
- Greater levels of fluid mineral development require greater quantities of water.
- By decreasing the percentage of a watershed that is disconnected by impoundments, more water would be available downstream.
- The use of horizontal drilling technology and hydraulic fracturing for well stimulation would occur as part of 20-25 percent of the oil and gas development in the planning area.
- New transportation facilities would be properly designed to the BLM's minimum standards.
- Aquifers with shallower depths to water are more susceptible to contamination. Mineral development is the primary BLM-authorized activity with a potential to effect shallow groundwater quality and quantity. Locations in the planning area with depths to groundwater of less than 100 feet or unconfined aquifers are considered the most likely to be effected by mineral development. Unconfined aquifers or aquifers with water table elevations of 100 feet below ground surface are more vulnerable to leaks and spills of contaminants at the surface. However, groundwater at greater depths is vulnerable to mine dewatering, casing failure, contamination from enhanced hydraulic conductivity caused by hydraulic fracturing and drilling, and contamination caused by chemicals used in hydraulic fracturing and drilling.
- Riparian conditions and water quality are directly related, and improvements to riparian/wetland conditions will tend to improve water quality and conversely detrimental effects to the riparian/wetlands could degrade water quality.
- The appropriation of water connected to BLM decisions can reduce the water supply that is available to other users or for other beneficial uses.
- The management of impoundments can affect water rights, soils, riparian/wetland habitat, fish and wildlife, recreation, and livestock grazing.

Nature and Type of Effects

Surface-disturbing activities, such as well development, prescribed burns, OHV travel, livestock grazing, and ROW development, can remove essential soil-stabilizing agents, such as vegetation, soil crusts, litter, and woody debris. These soil features function as living mulch by retaining soil moisture and discouraging annual weed growth (Belnap et al. 2001). Loss of one or more of these agents increases potential erosion and resulting sediment transport to water bodies, leading to water quality degradation.

Sedimentation can affect water quality and the physical characteristics of streams, resulting in habitat alteration or loss, stress, and reduced recruitment, particularly for sediment-intolerant species, such as salmonids (Behnke 1979). In addition, reducing vegetation cover may lead to higher water temperatures (Marlow and Pogacnic 1985). This could further effect the physical characteristics of streams and riparian and wetland areas, potentially to an extent that they are no longer sustainable or functioning properly. Loss of riparian habitat is one of the primary causes of impairment in the planning area. The effects of disturbances are determined in large part by their intensity, duration, frequency, timing, and extent of the area affected.

Mechanical alteration associated with surface-disturbing activities, as well as increased sedimentation from impaired watersheds, can also increase width/depth ratios in stream channels, which can increase lateral stream bank erosion and further sedimentation to streams (Rosgen 1996). For example, some studies show that livestock trampling can have significant effects on channel morphology and functional condition, especially for small low-gradient streams with banks composed of fine-grained soils (Platts 1991; Clary et al. 1996). Channelization is one of the primary causes of impairment in the planning area.

Surface-disturbing activities carry more erosion risks in areas of low reclamation potential, sensitive areas, such as stream channels, floodplains, and riparian habitats, and areas prone to drought. Examples of low reclamation potential are soils with severe wind erosion susceptibility, severe or very severe water erosion susceptibility, low restoration potential or soils in badlands or on rock outcrops. Disturbance in all these areas creates greater potential for erosion and sediment delivery to surface waters, thereby degrading water quality. During periods of drought, large increases in runoff and erosion can occur, especially after heavy grazing, causing increased sedimentation. In areas prone to frequent drought, light grazing is often recommended during normal years of growth so that the plant communities are healthy enough to survive the drought years.

Surface-disturbing activities in stream channels, floodplains, and riparian habitats are more likely to alter natural stability and floodplain function. Destabilization and loss of floodplain function accelerate stream channel and bank erosion, increase sediment supply, dewater near-stream deposits, and cause fish and riparian habitat loss and water quality deterioration (Rosgen 1996). Altering or removing riparian habitats can reduce the hydraulic roughness of the bank and increase flow velocities near the bank (National Research Council 2002). Increased flow velocities can accelerate erosion, thereby decreasing water quality. Grazing in riparian areas and on shorelines is one of the primary causes of impairment in the planning area. These effects can be short term or long term, depending on the type and amount of surface disturbances and local conditions.

Surface-disturbing activities, such as OHV use, road and mineral development, ROWs, and livestock grazing, can lead to soil compaction, which decreases infiltration rates and elevates the potential for increased overland flow. This higher flow velocity can increase erosion and sediment delivery potential to area water bodies, leading to water quality degradation.

Rangeland grazing is one of the primary causes of impairment in the planning area. The disposal of lands can indirectly lead to surface-disturbing activities by making them available for agricultural development and irrigated crop development, two of the greatest contributors to impairment in the planning area.

Reduced percolation of water through the soil can reduce groundwater flow (Neary et al. 2005). Reduced groundwater flow can affect surface water quantity by limiting the volume of water delivered to seeps and springs where water comes to the surface. These effects could be short term or long term, depending on the type and amount of surface disturbances and local conditions.

Certain surface-disturbing activities, such as road and well developments and occasionally wildfires, can remove vegetation completely. Other activities, such as prescribed fires or livestock grazing, may reduce the health and vigor of vegetation. The loss of vegetation can increase soil instability because plants would no longer be present to hold soil in place. This would result in sediment transport to surface water bodies, leading to water quality degradation.

Removing vegetation can also increase overland flow because plants would no longer be present to absorb water. This would result in more water capable of influencing water quality. Effects from vegetation removal may be short term or long term, depending on the degree and location of vegetation removal. Management actions to promote species diversity, restore vegetation to damaged areas, and limit surface-disturbing activities on vegetation generally reduce effects on water resources.

In watersheds with overly dense senescent stands, removing trees and vegetation, such as by prescribed fire, may reduce the demand on the shallow groundwater table by reducing root density (Tucker and Marlow 2006). This may decrease the depth to groundwater. In one study, Tucker and Marlow found that the average groundwater depth in these types of drainages treated with prescribed fires rose by up to 100 cm (40 inches) in a 2-year period.

While long-term effects of treatments are expected to improve conditions, vegetation removal and fire can have variable short-term effects. These may include increased erosion, sedimentation, and nutrient loading in surface water systems, especially if burn severity were greater than expected. Furthermore, depending on the soils, topography and recovery time between burn and precipitation events, it can increase runoff rates and peak flows, even though evapotranspiration is reduced.

Oil and gas drilling operations, including those utilizing hydraulic fracturing, would affect available quantities of surface water and groundwater. The possible sources of water are varied and include water marketed by municipalities; permits for new appropriations of surface water and changes to existing water rights; groundwater appropriations; and recycled water. Water withdrawals would lead to reduced aquifer water levels, reduced streamflow (through direct withdrawals or drawdown of aquifers that are hydraulically connected to nearby streams or springs), and effects to water quality parameters associated with stream flow. Effects associated with flow depletion could include increased water temperature, decreased concentration of dissolved oxygen, and increases in other parameters such as salinity and sodium adsorption ratio. Typically, produced water from conventional oil and gas wells would originate from a depth below useable aquifers or coal seams. Compliance with state regulations would mitigate the effects of water withdrawals on waterbodies and aquifers by ensuring that water rights are established for all beneficial uses of water, ensuring that water resources are not over-appropriated, and considering the effects of water withdrawals to groundwater wells and hydraulically connected surface waters.

Groundwater contamination can come from point sources, such as chemical spills, chemical storage tanks, oil and gas well sites, oil and gas detention and retention ponds, and mining activities. Other possible sources of groundwater contamination are nonpoint sources such as roadways and agricultural activities. Groundwater quality is most susceptible to pollution where the aquifer is shallow, very permeable, or connected directly to a surface water system, such as river gravels.

Potential effects on groundwater resources from fluid mineral extraction activities could include the following scenarios:

- Contamination of aquifers during drilling through the introduction of drilling fluids.
- Extended fracture growth allowing fracking fluid migration into source water zones or drinking water supplies (EPA 2004).

- Cross-contamination of aquifers from the introduction of drilling fluids into one aquifer that travels upward into shallower units due to improperly sealed well casings.
- Localized depletion of unconfined groundwater availability.
- Progressive contamination of deep confined, shallow confined, and unconfined aquifers if the deep confined aquifers are not completely cased off from deeper units.
- Contamination of shallow aquifers by improperly managed or closed reserve pits.

Evaporation would concentrate water-soluble metals, salts, and other chemicals in reserve pits. Precipitation, fluctuation of shallow groundwater, and flooding could mobilize these contaminants into groundwater. Solidification would prevent mobilization of potential contaminants. Removal and off-site disposal of liquids would remove most of the water-soluble metals, salts, and chemicals from the drilling waste material. The use of pitless or closed-loop technology could conserve water, recycle drilling fluids, reduce surface disturbance, and eliminate the use of pits. In unlined pits that were buried onsite or in pits with torn liners, drill cuttings could contribute contaminants to groundwater (Ramirez, Jr. 2009).

Produced water from conventional oil and gas development would affect the quality of surface water and groundwater through impoundments, injection, and discharge. Impounding or discharging produced water would increase evaporative losses of groundwater. Left untreated, produced water discharge and infiltration or leaking produced water disposal pits could reach stream channels via subsurface flow, which would decrease water quality. Proper siting and design of disposal pits would mitigate these effects. Underground injection control regulations would isolate injection zones from potentially useable aquifers, which would limit the effects.

The actual practice of hydraulic fracturing is only a small portion of the overall process of drilling, completing, and producing an oil and gas well. Issues related to hydraulic fracturing specifically include water availability and spills of chemicals at the surface. Issues associated with the more complete process of oil and gas drilling and production enabled by horizontal drilling and hydraulic fracturing include all the above as well as groundwater quality degradation and surface water quality degradation from waste fluid disposal (Akob et al. 2016).

The application of BMPs and compliance with State and federal rules and regulations would minimize adverse effects from these activities. The production of water from oil and gas wells would have the greatest potential to effect groundwater quality and quantity where the wells are producing from zones containing aquifers which are used as a source of freshwater.

Table 4-17, Alternatives Comparison of Fluid Minerals Development Stipulations on Water Resources, through **Table 4-20**, Alternatives Comparison of Land Use Authorizations on Water Resources, provide a summary of quantitative effects on water resources, by alternative. Of particular interest are the BLM-administered watersheds that are so extensive as to affect water quantity or yield. These do not include all streams in the planning area. The reservoirs included in the calculations are those that the BLM inventoried but do not include all acres of reservoirs in the LFO.

There are 3,626 acres of surface water impoundments on BLM-administered land in the planning area, disrupting watershed connectivity. There are 19 constructed, surface water impoundments (628 acres), comprising approximately 17 percent of all BLM-administered acres of surface water impoundments in the planning area that have previously been identified as sport fishery reservoirs, recreation sites, or hazard-size class. These impoundments have specifically been evaluated under each alternative for such factors as valid existing rights, hazard-class size, legal public access, sport fisheries habitat, livestock and wildlife water, and functionality.

Impoundments decrease the water supply and water availability to downstream channels by increasing infiltration and evapotranspiration. Removing impoundments then correspondingly reduces those hydrologic pathways. Womack (2012) found that in the Box Elder Watershed, in the Missouri River Breaks on the north side of the Missouri River, and in the same geoclimatic setting as the planning area, stock ponds are reducing peak flow rates by 12.66-24.08 percent and are reducing runoff volumes by 10.1-16.84 percent, depending on the return interval of the storm modeled. Conversely, removing impoundments increases the connectivity of watersheds and contributes to an increase in water supply and flow rate downstream. There will also be a reduction in atmospheric losses and local groundwater recharge. Downstream channels would have greater flow variability and water availability. The channel may widen from processing greater flow variability, but in some instances it may narrow where the increase in water availability supports greater numbers of hydric plant species; these typically have greater streambank stability than mesic riparian species associated with ephemeral or intermittent channels.

There are over 900 water bodies across the BLM's surface that effect a number of BLM authorized uses (livestock grazing), resource goals (recreation, wildlife habitat, water quality, and riparian/wetland conditions), and protectable interests (water rights and range improvements). They can have both positive and negative effects on watershed health and water quality. For example, many of the watersheds in the planning area have highly erodible soils. Consequently, the impoundments have the ability to affect the quantity of sediment delivered to surface waters and to effect water quality and quantity. However, if the impoundments provide water at times and locations that reduce concentrated livestock use, especially along natural water bodies, they can also improve livestock distribution. This could reduce the effects of livestock grazing and trampling on watershed function, riparian habitat, and water quality.

Not maintaining impoundments would result in the following:

- Maximize the time and distribution of available water
- Maintain or increase elevated total dissolved solids and water temperature
- Reduce hydrologic connectivity
- Cause discharge and sediment flux imbalances, with associated aggradation above the impoundments and degradation (i.e., incision) below the impoundments

Removing impoundments would result in the following:

- Reduce the duration and extent of available water
- Possibly cause livestock and wildlife to concentrate on nearby water sources, which may require supplemental development elsewhere
- Increase hydrologic connectivity
- Improve water quality in the long term (assuming appropriate mitigation)

Remote, historical impoundments that are not maintained or removed will lead to the following:

- A loss of water capacity as they infill with sediment
- A slow reduction in the time and distribution of available water and corresponding livestock distribution problems
- Sediment and discharge imbalances
- A heavy sediment pulse during eventual dam failure

Impoundments can affect water quality by increasing the percentage of total dissolved solids, especially during droughts, when high concentrations cause palatability and toxicity problems. Impoundments can also increase the presence of nitrates, SO_4, and fecal coliform and can increase water temperature. Furthermore, impoundments disrupt the natural balance between discharge and sediment, potentially eroding banks or beds. This could come about through sediment starvation below the impoundments, aggradation near the impoundments, and reduced nutrient input and sediment deposition on the floodplains.

Removing impoundments can help to restore channel function and riparian habitat conditions and assist the BLM in achieving Standards for Rangeland Health, including those associated with water quality. Flow alteration from water diversions, dams, and impoundments is one of the primary causes of impairment in the planning area.

Mineral development, fire suppression, and ROWs increase the presence and use of hazardous materials on BLM-administered lands, such as petroleum in vehicles, wastewater from mineral development, and fire retardants from fire suppression. This increases the likelihood of accidental releases of hazardous materials. The release of hazardous materials can directly contaminate surface water or groundwater if the release were to occur in water bodies, such as the accidental release of hazardous wastewater from injection wells into groundwater sources. The accidental release of hazardous materials and the use of fire retardants can also indirectly contaminate surface water and groundwater; this would happen if the release were to occur on dry land and then percolate into the groundwater during recharge or wash into the surface water during overland water flows. Depending on local conditions and the type of hazardous material, water quality contamination can be short term or long term.

Mineral development can involve the disposal of drilling fluids outside of a basin or injection of wastewater into deep wells. This can directly reduce the supply of groundwater or surface water. If the rate of aquifer depletion exceeds the rate of recharge, groundwater aquifers can shrink, permanently reducing water supply and altering the aquifer. Reduced groundwater flow can affect surface water quantity by limiting the volume of water delivered to streams, seeps, and springs. The effects on water quantity from mineral development can be short term or long term, depending on the rate of use or the water source and whether the water is recycled.

Wildlife use and livestock grazing increases the presence of waste matter and bacteria on the surface. These materials can contaminate surface water directly if deposited into a water body, leading to diminished water quality. These materials may also be washed into surface water through overland flow or may percolate into groundwater during recharge, indirectly effecting water quality. These effects can be short term or long term, depending on season of use, type of use, intensity of livestock grazing or use, and climatic conditions.

The diversion of water from natural sources to impoundments and stock tanks for livestock use, the consumption of water by livestock (estimated at 20 gallons per day for adults and 15 gallons per day for calves), and the use of water for irrigation for supplemental feed can reduce water supply.

W.3.4 Vegetation Communities

Indicators of effects on vegetation communities are the following:

- Any man-made or natural event that alters a vegetation community
- Any action or event that would remove a vegetation community's unique attributes or ability to support other resource values
- Any unmitigated loss of riparian areas, wetlands or wetland function
- When PFC cannot be attained or maintained as a minimum physical state, or the Land Health Standard 2: Riparian and wetlands areas in PFC (BLM 1997, Dickard et al. 2015) cannot be obtained as a result of the management actions
- A change in VCC or vegetation community structure
- Management actions or activities that accelerate erosion and runoff and thereby alter the physical characteristics of wetland and riparian vegetation
- Replacement or substantial invasion of native communities with noxious and invasive weeds to the degree that such invasions cannot be successfully controlled or change the character of native communities
- Water quality is directly tied to riparian condition. Therefore, improvements to water quality indicates improvements on riparian/wetland conditions health.

The analysis is based on the following assumptions:

- Vegetation composition inventories were not completed. Estimates were made concerning the significance of these resources based on previous surveys and existing knowledge.
- Adequate forage will be available for current wildlife and livestock population objectives, with normal precipitation (absence of drought).
- All plant communities will be managed to achieve a mix of species composition, cover, and age classes across BLM-administered lands.
- The degree of effect attributed to any one disturbance or series of disturbances would be influenced by such factors as location in the watershed, the type, time, and degree of disturbance, existing vegetation, precipitation, and mitigating actions applied to the disturbance.
- Noxious and invasive weeds will continue to be introduced and spread as a result of ongoing vehicle traffic in and out of the planning area, recreation, wildfire, wildlife and livestock grazing and movements, and surface-disturbing activities.
- Activities that will disturb soils could cause erosion, loss of topsoil, and soil compaction, which could affect the ability of vegetation to regenerate. Resulting effects could include lowered plant vigor and growth rate, altered or disrupted pollination, and increased susceptibility to disease.
- Ecological health and ecosystem function depend on a number of factors, including disturbance, vegetation, species diversity, nutrient cycling and availability, water infiltration and availability, and presence of noxious or invasive weed species.

- Changes in the number of water impoundments would affect downstream water availability.
- Weather fluctuations will continue to influence the health and productivity of plant communities annually.
- Short term is defined as anticipated to begin and end in the first 5 years after the action is implemented; long term is defined as lasting beyond 5 years to the end of or beyond the 20-year planning time frame addressed in the RMP.

Priority vegetation communities are not defined or delineated under Alternative A. However, effects on vegetation communities under Alternative A are described in the context of the five priority vegetation communities to provide a consistent lens for comparison across all alternatives.

Nature and Type of Effects

Ponderosa Pine Breaks/Badlands

The effects of management actions on ponderosa pine breaks/badlands may vary widely, depending on such factors as the type of soils, aspect, precipitation, soil moisture, topography, and seral stage. Forest management techniques, which include silvicultural methods, such as thinning, timber stand improvement, and prescribed fire, can improve forest health by creating conditions resilient to insect and disease outbreaks. These techniques also can reduce the likelihood of stand-replacing wildfire.

Wildfires historically burned through the planning area, resulting in a variety of species compositions and vegetation structures arranged in a variety of mosaics (Graham and Jain 2005). Such diversity and structure provide a variety of habitats for wildlife. Further, fire has a role in preparing mineral seedbeds that facilitate regeneration and in killing young trees and preventing dense understories (Ehle and Baker 2003).

Wildfires may also reduce the amount, density, and continuity of surface fuels and ladder fuels, while reducing the likelihood of high-intensity crown fires (Graham et al. 2004). Wildfires may burn hot enough to kill soil organisms and root systems, resulting in diminished plant recruitment[1] and growth rates, depending on the size, extent, and quantity of fuel available.

Prescribed fires and other conifer thinning treatments could affect ponderosa pine breaks and badlands vegetation by reducing dense patches of small trees and accumulated dead grass, needles, and other wood debris, thereby lessening the chance of stand-replacing wildfires (Fischer and Clayton 1983). Additionally, prescribed fire treatments could decrease the depth to groundwater and increase the number of forb species, due to decreased demand on the shallow groundwater table (Tucker and Marlow 2006).

Other direct effects on ponderosa pine breaks/badlands vegetation communities include those management actions or activities that result in loss, conversion, or fragmentation of habitat.

Montane Forests and Meadows

The nature and type of effects on montane forests and meadow vegetation communities would be similar to the effects described under *Ponderosa Pine Breaks/Badlands*. In addition, insect and disease outbreaks can result in forest mortality and changes in age class structure. Conifer encroachment has resulted from historical fire suppression, as described in **Section 3.2.5**. Forest health treatments would result in the following:

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[1] Population increase

- Create conditions that are resilient to insect and disease outbreaks
- Reduce conifer encroachment into historical meadows by removing encroaching trees and maintaining contiguous meadow habitats
- Promote aspen expansion by removing encroaching conifers in aspen stands

Sagebrush/Grasslands

Direct effects on sagebrush/grassland vegetation communities may include vegetation loss, conversion, fragmentation, and changes in vegetation communities. Disturbance, such as fire or floods, effect the ratio of sagebrush to grassland habitats. Vegetation removal could affect the amount and distribution of ground cover (e.g., litter, live and standing dead vegetation, and macrobiotic crusts) and may influence soil stability (Ziemer 1981). Another direct effect is from vegetation utilization by livestock and wildlife. Indirect effects are from the spread of weeds.

Invasive weeds alter plant community structure and composition, productivity, nutrient cycling, and hydrology and may cause declines in native plant populations through competitive exclusion, niche displacement, and other mechanisms (Strayer et al. 2006). Indirect effects may also include conversion and fragmentation, including adjacent private lands.

Properly managed grazing can be used as a tool to reduce fuel load, to protect intact sagebrush/grassland habitat, and to increase habitat extent and continuity (Adams et al. 2004). Grazing can also reduce litter, remove annual grasses, facilitate growth of native species and increase vegetation community diversity. Conditions following grazing would depend on the grazing system, type of livestock, timing, intensity, vegetation, and weather. Land health evaluations are used to assess rangeland condition and help to identify where changes in grazing management would be beneficial. In areas meeting Rangeland Health Standards (BLM 1997), grazing practices coexist with healthy vegetation communities providing wildlife habitat.

Effects from poorly managed livestock grazing would be greater in magnitude and extent than those from properly managed grazing. These effects are from loss of vegetation cover, reduced water infiltration rates and nutrient cycling, decreased plant litter on the soil surface, increased soil erosion, altered species composition, and reduced vigor (Connelly et al. 2004; Knick et al. 2011; Manier et al. 2013).

Livestock can transport weeds by passing seed through their digestive system or by transporting seed attached to their hair (DiTomaso 2000; Sheley et al. 1996). However, grazing practices can be used to reduce fuel load (Davies et al. 2010), which could alter fire size and severity.

Water developments would permanently remove vegetation in a development's footprint and would concentrate livestock effects in certain areas (Braun 1998). This would reduce associated vegetation cover and increase the likelihood for weed invasion and spread in specific areas. Range improvements could also lessen the individual effects of livestock at any one water source, because the congregation effects are spread to more areas.

Surface disturbance increases the likelihood for weed introduction and spread. Wildfires create opportunities for noxious and invasive weeds to become established or spread by removing aboveground vegetation and leaving burned areas more susceptible to noxious and invasive weeds (Brooks and Lusk 2008).

Grasslands

The nature and type of effects on grassland vegetation communities would be the same as those discussed under *Sagebrush/Grasslands*.

Riparian/Wetland Communities

Increasing surface disturbance could increase erosion rates and decrease riparian/wetland functioning conditions (Ellis 2008). Additionally, effects on wetland or riparian systems could damage vegetation, cause the loss of hydrologic function and wildlife habitat, increase erosion, and reduce water retention. Fire in young, dense conifer stands may increase groundwater availability in riparian wetland communities by reducing the demand on the shallow groundwater table (Tucker and Marlow 2006).

As described under *Nature and Type of Effects* for Water Resources, there are over 1,000 BLM-administered surface water impoundments in the planning area. These decrease the water supply and water availability to downstream lotic riparian areas by increasing infiltration and evapotranspiration. Often, impoundments support lentic riparian-wetland areas around the reservoir itself and in seepage areas below the embankment.

Removing impoundments would have variable and site-specific long-term effects. Examples are a potential decrease in the number of lentic riparian-wetland habitats in these areas and an increase in lotic riparian-wetland habitats and effective watershed size. Downstream lotic riparian-wetland areas would have greater flow variability and water availability. The increase in water availability may support greater numbers of hydric plant species downstream.

Not maintaining impoundments will increase the lentic riparian-wetland area around the reservoir as the amount of water stored increases. However, remote historical impoundments that are not maintained or removed would eventually fill with sediment, reducing water quality and conditions for riparian areas and wetland health. This could damage or destroy the riparian/wetland areas below the impoundment, if there were a dam failure.

Although some of the effects from livestock grazing discussed in the *Nature and Type of Effects* for Sagebrush/Grasslands are similar, these areas are generally more sensitive to change. Effects on sagebrush/grasslands are greater, due to the following:

- Forces of flowing water
- Presence of highly palatable forage, when upland plants lose their palatability
- Sensitivity of saturated soils to trampling
- Tendency to concentrate ungulates around associated water bodies

These effects are even more pronounced during periods of drought, when water sources are reduced and upland plants lose their palatability earlier in the year.

Although proper riparian grazing management can mitigate many of the adverse effects on riparian/wetland habitat that are sometimes associated with livestock grazing, historical and contemporary effects of livestock grazing and trampling in riparian areas have occurred. Livestock often use riparian and wetland areas in the summer for water, shade, and palatable forage. This may concentrate use and effect riparian-wetland conditions by reducing plant cover; trampling, leading to reduced plant vigor; and compacting the soil (Belsky et al. 1999). This would reduce their success at the following:

- Withstand high water flow
- Capture sediment and develop floodplains
- Retain floodwaters and recharge groundwater
- Develop root masses that stabilize streambanks against erosion
- Maintain channel/ponding characteristics

Range improvements or management that excludes livestock or attracts them away from riparian and wetland areas would also maintain riparian and wetland areas by reducing disturbance from livestock (Belsky et al. 1999). In riparian and wetland areas where livestock grazing is excluded, vegetation would be allowed to recover and could progress toward PFC through increases in vegetation height, cover, and vigor (Sarr 2002), depending on the extent of damage.

Livestock may also cause effects on hydrologic processes, which is a component of PFC. Grazing along stream channels can destabilize streambanks, thus contributing to widened or incised channels (NRCS 2002). Stream incision contributes to desiccation of floodplains and wet meadows, loss of floodwater detention storage, and reductions in base flow (Ponce and Lindquist 1990; Trimble and Mendel 1995).

Livestock use of riparian plant communities can also decrease the availability of food and construction materials for keystone species, such as beaver (*Castor canadensis*). Although there are no known soil compaction studies in the planning areas, soil compaction from livestock has been identified as a common problem on public lands (CWWR 1996; Forest Service and BLM 1997). Soil compaction significantly reduces infiltration rates and the ability of soils to store water, both of which affect runoff processes (Branson et al. 1981; Blackburn 1984), which can affect riparian systems. Compaction of wet meadow soils by livestock can significantly decrease soil water storage (Kauffman et al. 2004), thus contributing to reduced summer base flows. At the same time, decreases in infiltration and soil water storage of compacted soils during periods of high-intensity rainfall contribute to increased surface runoff and soil erosion (Branson et al. 1981). These fundamental alterations in hydrologic processes from livestock use may be exacerbated by climate variability which is anticipated to alter the timing and magnitude of peak flows.

W.3.5 Fish and Wildlife

Indicators of effects on fish and wildlife are as follows:

- Disturbance and changes in habitat, food supplies, cover, breeding sites, and other habitat components necessary for population maintenance used by any species to a degree that would lead to substantial population change

- Disturbance and change of seasonally important habitat (e.g., critical for overwintering or successful breeding) to a degree that would lead to substantial population change
- Interference with a species' movement pattern that affects the ability of a species to breed or overwinter successfully to a degree that would lead to substantial population change
- Direct destruction of, or injury to, individual species to a degree that would lead to a substantial population change

Indicators specific to aquatic species and their habitats are as follows:

- Sediment and turbidity—Change in sediment loading in waters containing sediment-intolerant fish species; loss of recruitment, stress, habitat alteration, and habitat loss
- Habitat alteration—Changes in habitat that make it nonfunctional for select species or more conducive to competitive species
- Changes in streamside vegetation and cover—Change in streambank stability, temperatures, stress, productivity, and effects on food webs
- Change in amount of connected habitat and/or population isolation
- Water quality alteration—Actions that alter the important water quality parameters of pH, dissolved oxygen, temperature, hardness, alkalinity and salinity, nutrient cycling, and turbidity
- Water quantity alteration—Change in physical habitat, sediment accumulation, habitat alteration, loss of habitat complexity, or food source reduction

The analysis is based on the following assumptions:

- Wildlife and special status species occurrence and condition inventories were not completed throughout the planning area. Estimates were made concerning the significance of these resources based on previous surveys and existing knowledge.
- In lentic water systems, water depth and reservoir volume will decrease as a result of sediment deposition.
- Wildlife habitat needs vary substantially by species. This is generally true; however, healthy and sustainable wildlife populations can be supported where there is a diverse mix of plant communities with multiple seral stages to supply structure, forage, cover, and other specific habitat requirements. Thus, managing for a diverse mix of plant communities is an important component of managing for species diversity.
- Habitat and soil conditions and water quality and quantity are directly linked to the health, vigor, and cover of vegetation communities, particularly desired plant communities that fish and wildlife species depend on.
- Effects on terrestrial wildlife from displacement depend on the location, extent, timing, or intensity of the disruption or could depend on all four. Furthermore, effects from displacement will be greater for wildlife species that have limited habitat or a low tolerance for disturbance.
- Human disturbance will displace wildlife beyond the actual disturbance footprint, although some wildlife may adapt over time, depending on the nature of the disturbance and the species being effected.

- Short term is defined as anticipated to begin and end in the first 5 years after the action is implemented; long term is defined as lasting beyond 5 years to the end of, or beyond, the 20-year planning time frame addressed in the RMP.
- In the context of this analysis, the term avoidance means reduced use and does not imply a complete absence of use by wildlife.

Nature and Type of Effects

Fish and Aquatic Communities

The health of fish and aquatic communities is tied to the overall health and function capabilities of riparian and wetland resources and watershed health. Any activities that affect the ecological conditions of the watershed and its vegetation would directly or indirectly affect the aquatic environment. As riparian systems adjust in response to the removal of vegetation or changes in hydrologic conditions, the availability of habitats required to fulfill the life history requirements of fish and aquatic species populations might be affected.

In general, management objectives for the riparian/wetland communities priority vegetation type would support fish and aquatic communities. This is because cold water and warm water aquatic habitats are associated with this vegetation type.

Sediment and Turbidity

Activities that result in surface disturbance may increase sediment and turbidity in lotic and lentic environments, which can result in habitat alteration or loss, stress, and reduced recruitment, particularly for sediment-intolerant species, such as salmonids (Behnke 1979; Bjornn and Reiser 1991; Chapman 1988). The effects of disturbances are determined in large part by their intensity, duration, frequency, timing, and extent of the area affected.

Habitat Alteration

Activities that affect stream channels or stream banks can result in habitat alteration. Examples are channel relocation, diking, riprapping, and fine sediment input at levels greater than the stream can efficiently or effectively move.

Actions that affect stream banks can result in soil compaction, increased erosion, and subsequent widening of stream channels. Stream widening results in a loss of habitat complexity and diversity and reduced water depths, which can reduce available habitat and cause increased stream temperatures. Depending on the species, increased temperatures can affect fish and aquatic communities by increasing physiological stress, and increasing susceptibility to disease. Stream bank alteration also exposes bare soils, which provides for points of invasion by weedy species and increases the risk of further erosion of the stream bank.

Actions that increase the amount of soil exposed to the erosive effects of water would increase sediment loading and turbidity. This can alter feeding by fish that require water clarity to forage and capture prey. Reduced flows can result in buildup of sediment and alter channels by narrowing them and reducing habitat complexity for some species (Sullivan et al. 1987).

Loss or Reduction of Streamside Vegetation Cover

Loss or reduction of streamside riparian vegetation can alter the nutrient dynamics of the aquatic ecosystem. Terrestrial insect diversity and productivity decreases with reductions in streamside vegetation, which may affect food availability (Sullivan et al. 1987). Loss of streamside vegetation may also accelerate bank erosion.

Changes in streamside vegetation may also influence large woody debris, which in forested watersheds is an essential component in the formation of stream morphology and provides habitat for aquatic insects and fish. Therefore, the factors that directly affect introduction, stability, or character of stream large woody debris may influence native fish populations that use streams for spawning, rearing, or growth and completion of life histories (Hauer et al. 1999). A loss or reduction of streamside vegetation may also influence water temperature by increasing direct solar radiation (Mahlum et al. 2011).

Changes in Water Quality

Environmental pollutants via anthropogenic or natural sources may result in direct effects on fish and aquatic communities, including both lethal and sub-lethal effects. Typically, the effects occur through changes in water temperature, salinity, dissolved oxygen, nutrient loading, and pH. Examples of sub-lethal effects are physiological effects (e.g., disruption of sensory, hormonal, neurological, and metabolic systems) and behavioral effects (e.g., disruption of predator avoidance, reproduction, and social behaviors [Scott and Sloman 2004]).

These effects of water quality alteration are complex and often species-specific. Water quality alteration may also have indirect effects on fish and aquatic communities by affecting food availability and food chain processes.

Changes in Water Quantity

Activities resulting in water depletions may result in direct effects, including loss of physical habitat or habitat complexity. Reduced flow can also result in increased water temperatures, changes in food supplies, and loss of carrying capacity. Important microhabitats, such as spawning bars and pools, can be lost or altered.

The types of actions and activities that can result in water depletions are construction of water impoundments (e.g., stock ponds); water diversion for agriculture use, domestic use, or oil and gas development; and fire suppression. Reducing dense, young conifer stands in ponderosa pine breaks/badlands may increase groundwater availability in riparian wetland communities by reducing the demand on the shallow groundwater table (Tucker and Marlow 2006).

Changes in water quantity may influence watershed and habitat connectivity. Removing impoundments could return areas to pre-impoundment hydrologic regimes and increase watershed connectivity. Depletion of water resources could decrease watershed connectivity, depending on the location quantity and timing of water depletion activities.

Interspecific Competition and Nonnative Species Interactions

Factors that change the dynamics of interspecific completion and nonnative species interactions could affect species richness, diversity, and patterns of abundance. Where there is a strong potential for common resource requirements (i.e., high niche overlap) between species that occupy the same spatial area, interspecific interactions are more likely to occur. Such interactions may include competition for resources, predation, hybridization, and disease or parasite transmission (Dunham et al. 2003).

Habitat Connectivity and Population Isolation

Disruptions in the connectivity of the streams can interfere with the natural movements of fishes and thus with the recolonization of upstream reaches after drying or flooding (Dodds et al. 2004). Increased habitat connectivity provides fish access to off-channel habitats that are rich in resources and allow for movement upstream, past barriers, and through ephemeral reaches. In prairie streams, in particular, heightened flows are important for maintaining isolated populations that occur higher up in the prairie watershed (Dodds et al. 2004).

Climate

Both climate variability and short-term variation in weather patterns may contribute to changes in stream systems, such as flow, temperature, and turbidity.

Rising global temperatures are more likely to affect fish and aquatic species found in cold water, aquatic priority habitats at the lower elevations. Increasing stream temperatures could affect habitat suitability, potentially increasing the risk of hybridization of invasive and native fish species (Muhlfeld et al. 2014). Additionally, if climate variability results in droughts that are longer and more severe than historical patterns, fish and aquatic populations in isolated lotic systems may be at risk of extirpation.

Wildlife and Habitat

Permitted and casual use activities can effect species or habitats through disturbance, habitat loss, reduced habitat effectiveness, habitat modification and degradation, physiological stress, habitat fragmentation, direct mortality, habitat avoidance, and interference with movement patterns. Examples of permitted surface-disturbing activities with the potential to affect wildlife and habitat are mineral exploration and development, ROW construction and use, commercial timber harvesting, recreation, and other land use authorizations. Examples of casual use activities are motorized vehicle and OHV use, dispersed recreation, and unauthorized route use.

Both short-term, loud noise (such as from vehicles or construction) and long-term, low-level noise (such as oil and gas development) has been documented to cause increased heart rate, altered metabolism, and a change in wildlife species hormone balance (Radle 2007). Determining the effect of noise is complicated because different species and individuals have varying responses, and certain species rely more heavily on acoustical cues than others (Radle 2007; Barber et al. 2009).

Roads, mineral development, and off-road recreation have been shown to affect terrestrial wildlife, particularly big game species. Effects can be increased movement rates and probabilities of flight response (Wisdom et al. 2004) and increased daily movements and home ranges (Rowland et al. 2004). Such increases in movement and stress levels would cause individuals to expend more energy, which could affect reproductive success or susceptibility to mortality, predation, or disease.

Herbaceous vegetation provides cover for a variety of grassland birds, reptiles, small and large mammals, and other wildlife. Substantial annual consumption of herbaceous vegetation by livestock, resulting in only remnant cover, may be detrimental to certain species, such as grasshopper sparrows (*Ammodramus savannarum*), clay-colored sparrows (*Spizella pallida*), and savannah sparrows (*Passerculus sandwichensis*);

however, other species, such as chestnut-collared longspurs (*Calcarius ornatus*) and horned larks (*Eremophila alpestris*), may favor heavily grazed areas (Krausman et al. 2009; Salo et al. 2004). Grazing may also be used as a tool to diversify grassland habitats for songbirds or enhance forage palatability for elk (Krausman et al. 2009; Frisina 1992).

Wildfires may affect wildlife through habitat avoidance, displacement, and, potentially, direct mortality. High intensity wildfires could also lead to long-term changes in wildlife habitat composition and structure, as discussed under **Section 4.3.5**. However, wildfires may also increase habitat patchiness, providing wildlife with a diversity of vegetation conditions from which to select food and cover (Smith 2000). Trees killed by fires may provide nest sites for woodpeckers and then for secondary bird and mammal cavity nesters. In addition, fires may cause short-term increases in food availability that contributes to increases in populations of some animals. These increases are moderated by the animals' ability to thrive in the altered structure of the post-fire environment (Smith 2000).

Bird deaths and injury could occur from collision or electrocution with transmission lines and other ROW structures (APLIC 2012). Oil field waste pits may effect birds and wildlife through the following (USFWS 2000):

- Entrapping them in oil, causing them to drown
- Killing or making them ill from preening feathers or cleaning fur that is covered with oil
- Stressing them with cold if oil damages the insulating properties of feathers or fur
- Increasing their susceptibility to disease or predation
- Reducing hatching success of eggs

Wind energy may also cause direct effects on birds and bats, including blade strikes, barotrauma,[2] habitat loss, and displacement.

Bats are susceptible to WNS. The hypothesis is that bats affected by WNS emerge from hibernation at a greater frequency and for longer periods than normal, resulting in high rates of winter mortality through fat loss and aberrant behaviors (Department of Agriculture, Department of Defense, Department of the Interior, and Association of Fish and Wildlife Agencies 2011). However, bats in Montana are less susceptible to WNS, due to a lack of large hibernacula.[3]

Climate variability has the potential to affect a variety of wildlife species and habitat; some species may benefit from these changes, while others may be negatively affected. Rising global temperatures may drive changes in timing and geographic ranges for wildlife species. Additionally, increased occurrences of fires, insect pests, disease pathogens, and invasive weed species are likely to continue as a result of rising global temperatures (BLM 2010).

Other indirect effects from climate variability may include the following:

- Introduction of invasive vegetation that can compete with native vegetation, resulting in changed habitat and alteration of fire cycles

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[2] Injury or death caused by rapid or excessive pressure changes

[3] Shelters

- Decreased habitat effectiveness
- Land use activities or changes in land use activities on lands not administered by the BLM

Priority Species

The nature and type of effects on priority species are similar to those discussed under *Fish and Aquatic Communities* and *Wildlife and Habitat*. In general, fish and wildlife management objectives would complement priority species management objectives, as both programs manage for maintaining wildlife habitat. The nature and type of effects for specific priority species are discussed below.

Grizzly Bear

The availability of habitat for grizzly bears is largely determined by human activities. Road construction and use may have a negative effect on habitat selection (Mace et al. 1996), particularly on lands designated as PCAs by the NCDE Grizzly Bear Conservation Strategy. Motorized access routes may increase human interaction and the potential for grizzly bear deaths, may displace individuals or populations from important habitat, and may reduce suitable habitat. Developed sites, such as campgrounds, trailheads, lodges, and rental cabins, can effect bears through temporary or permanent habitat loss, displacement, and death due to bear/human conflicts caused by unsecured bear attractants, habituation, and food conditioning (USFWS 2013a).

Greater Sage-Grouse

Surface-disturbing activities in PHMA, including SFAs, and GHMAs, could affect greater sage-grouse individuals and populations and habitat. This would depend on the location, timing, and extent of the activity. Present and widespread threats to the Belt Mountain and Yellowstone Watershed populations in the planning area are agriculture conversion, weeds and annual grasses, energy infrastructure, grazing, and isolation and small size (Belt Mountain population only; USFWS 2013b).

Vegetation management aimed at reducing or eliminating conifer encroachment in sagebrush habitats would indirectly effect greater sage-grouse by maintaining or improving habitat conditions.

Recreation activities can affect greater sage-grouse by the following (Knick et al. 2011):

- Increased risk of direct mortality
- Behavior modifications due to noise, activity, and habitat loss and alteration
- Habitat degradation, such as through direct effects on vegetation and soils and introduction or spread of invasive species

Bighorn Sheep

Bighorn sheep populations are also at risk of disease transmission from domestic sheep or goats, which can result in death. In areas where bighorn sheep habitat overlaps with domestic sheep or goat grazing, the potential risk of disease transmission would be high.

Prairie Dog Communities

In prairie dog towns, surface-disturbing activities such as new ROWs, energy developments, or other land use activities could result in the removal or fragmentation of prairie dog communities. Additionally, black-tailed prairie dogs are affected by sylvatic plague, which can kill entire towns.

W.3.6 Wildfire Ecology and Management

Indicators of effects on wildfire ecology and management are the following:

- Alteration standing and downed vegetation that results in a substantial shift in the VCCs of the planning area away from or toward historical reference conditions
- A substantial change in the likelihood or severity of wildfire ignitions in areas where it is not desired (based on level of restrictions on uses that may introduce sources of ignition)
- Management actions that substantially effect the ability to respond to wildfire or appropriate treatments to manage for wildfire

The analysis is based on the following assumptions:

- Fire is an important, functional, natural disturbance in many of the ecological systems found in the planning area.
- As under current conditions, most fire starts in the planning area would be expected to result from natural sources such as lightning. Where human-caused fires occur, a relationship exists between human access and the likelihood of human-caused fires.
- There is a direct relationship between fuel loading and potential fire intensity and severity.
- Demand for fuels treatments will likely increase over the life of this plan.

Effects from mineral split-estate are covered under the discussions of effects from fluid and solid minerals. As such, there is no further discussion of mineral split-estate in this section.

Nature and Type of Effects

Effects on wildfire management result from changes in fire frequency and intensity and the ability to employ fire-suppression methods. All of these would affect fire management and the related costs in the planning area.

As discussed in **Section 3.2.7**, most lands in the decision area have a moderate to high level of departure from historical conditions and related fire risk. Actions that change condition class from highly altered ecosystems to one closer to historical conditions could reduce the risk of losing key ecosystems and decrease fire risk and management costs in the long term.

As detailed in **Appendix I**, fire management strategy for the LFO is classified into four categories as follows:

- Category A is areas where fire is not desired. No areas are classified as Category A in the planning area under any alternatives.
- Category B is areas where unplanned fires are likely to cause negative effects. Within this category, suppression of unplanned fires would be required, and management time and costs are likely to be higher as a result. While some vegetation treatments may be appropriate, this area is not likely to have large-scale shifts in VCC.
- Category C is areas where fire is desired to manage ecosystems, but the current vegetation condition creates some constraints on use. In this management type, some suppression could be

appropriate but to a lesser degree than in Category B. Vegetation treatments and wildfire may result in some shifts in VCC.

- In Category D, fire is desired, and both wildfire and prescribed fire would be used to achieve management objectives. Fire suppression is likely to be minimal, so costs for management would be low. Large-scale shifts in VCC may occur.

Management direction can affect the cost of the fire management program. Emphasizing prevention, detection, and rapid suppression of all unplanned fires can result in higher costs for suppression (Ellison, Moseley, and Bixler 2015); conversely, using planned and unplanned fire to achieve resource objectives can reduce suppression costs. In addition, while fuels management may represent initial time and costs, these activities could prevent catastrophic fire; therefore, costs for management could be reduced in the long term.

Vegetation and weed treatments that decrease standing vegetation could decrease the intensity of wildfires and allow fires to be more easily controlled. For example, reducing the incursion of nonnative annual grasses (such as cheatgrass) and the proliferation of other noxious and invasive weeds would promote healthy plant communities and an associated lower risk of high-intensity wildfire (USGS 2006).

Used appropriately, prescribed fire would be compatible with noxious weed control; however, the presence of noxious weeds and their potential to spread after a prescribed fire would need to be monitored on a site-specific basis. Conversely, management actions that retain shrub and cover may result in increased fuel loading and the likelihood of higher intensity wildfires.

Management actions that are intended to improve, create, or reestablish healthy ecological conditions in various vegetation types effect the fire and fuels program in the long term. They do this by promoting the most efficient use of fire and fuels management program resources. Conversely, prioritizing fire suppression can limit management options and increase costs for fire management programs.

The introduction and establishment of exotic plant species can contribute to a departure from historical fire regimes. A focus on native seed restoration can create a habitat that is less susceptible to wildfires; therefore, this places less burden on fire management programs (Hann and Bunnell 2001).

Grazing management can affect the ability to manage fire as a natural process through changes in fine fuels availability (e.g., grasses). Livestock grazing reduces fuel loads; the voluntarily relinquishment of grazing allotments and allocation of those lands to other uses may lead to increased fuels in site-specific locations. Conversely, increasing AUMs could reduce fuel loads.

Many different resource uses may introduce additional ignition sources into the planning area. These increase the probability of wildfire and the need for fire suppression. Fire intensity can be affected by activities that decrease fuel loading, such as vegetation treatments, timber harvesting, and activities that alter the composition and structure of vegetation communities. High-intensity fires generally result in a greater loss of vegetation cover, changes to soil chemistry, damage to root structures, and a greater ability for nonnative species to become established (Verma and Jayakumar 2012).

Transportation and travel management can effect fire frequency by changing the level of risk of human-caused ignitions. All forms of travel encourage the spread of invasive weeds (CEC 2012), particularly cheatgrass, which can shift fire regimes and increase fire behavior potential. Conversely, if management restricts access, wildfire risk may be decreased. In addition, transportation management may effect fire suppression; when routes are closed and rehabilitated, they become unavailable for response to wildfires, limiting access opportunities.

Similarly, the level and type of recreation permitted can effect fire risk. Increased recreation may increase the probability of unintentional human-caused ignitions and the need for fire suppression. Recreation management may reduce this risk by providing targeted activities and outcomes.

Surface disturbance from development would generally contribute to the modification of the composition and structure of vegetation communities (including increases in noxious weed proliferation) in the vicinity of developed areas. This could then be more likely to fuel high-intensity fires and increase program costs.

Lands and realty actions may indirectly result in development and associated fire risk. For example, issuing land use authorizations can increase the risk of human-caused ignition with the construction of transmission lines, renewable energy projects, or other development.

Likewise, the development of energy and minerals resources could increase the risk of wildfires by introducing new ignition sources (Shlisky et al. 2007). Associated facilities, infrastructure, and transmission lines can increase fire and fuels program costs, while decreasing fire management flexibility with regard to suppression options. Energy development also poses hazards to firefighters, including unknown toxins, facility protection, industry personnel evacuation, and dangerous overhead power lines. Fire programs could incur additional costs to train firefighters.

Limitations on mineral development would have an indirect effect of decreased fire, but only when additional leasing would otherwise be likely. This would be due to less development, fewer vehicles, and less construction equipment, all of which would decrease the chance of human ignition.

In areas with limited potential for development, changes to mineral management are likely to have negligible effects on fire management. Likewise, the potential for invasive species establishment or increase may follow construction and could affect fire management actions through increased risk of fire and need for fire management.

Special designations, such as ACECs, and the management of sensitive resources can restrict fuels treatments on a site-specific basis. For example, in areas where preservation of particular species or habitats is emphasized, management options and fuels treatments may be limited. Management decisions that identify areas for special protection, such as eligible and suitable WSRs, may also encourage additional visitation and increase the risk of human-caused ignition.

W.3.7 Cultural and Heritage Resources

Effects on cultural resources are assessed by applying the criteria of "adverse effect," as defined in 36 CFR 800.5a.

While 36 CFR 800.5a is the main indicator for determining a threshold for significant effect, there are additional level-of-effect indicators that are carefully considered to describe the effects. These are as follows:

- Magnitude—The level of physical alteration or destruction which can be expected. The resultant loss of archaeological value is measured either in level or degree of disturbance.
- Severity—The irreversibility of an effect. Adverse effects that result in a totally irreversible and irretrievable loss of archaeological value are of the highest severity.
- Duration—The length of time an adverse effect persists. Effects may have short-term or temporary effects or, conversely, more persistent, long-term effects on archaeological sites.
- Range—The spatial distribution, whether widespread or site-specific, of an adverse effect.
- Frequency—The number of times an effect can be expected. For example, an adverse effect of variable magnitude and severity may occur only once. An effect, such as that resulting from cultivation, may recur or be ongoing.
- Diversity—The number of different kinds of project-related actions expected to affect cultural resources.

Finally, the analysis is based on the following assumptions:

- Cultural resource inventories were not completed. The significance of these resources was estimated, based on previous surveys and existing knowledge.
- The BLM would follow 36 CFR 800, Section 106, and the Montana Protocol when addressing federal undertakings; therefore, adverse effects on cultural resources would be appropriately mitigated.
- Native Americans or other traditional communities may have concerns about effects on cultural resources, religious practices, or natural resource gathering because of federal actions. In cases where these concerns might be present, the BLM would consult with the potentially affected group or groups.
- The information on cultural resources in the planning area is based on the results of industry and BLM inventory projects and depicts the relative potential for cultural resource sites in the planning area. Data resulting from industry projects are geographically biased toward past project-oriented undertakings and do not accurately predict where and how many resources may exist in unsurveyed areas. This analysis does not attempt to quantify affected resources.
- Cultural resource protection and mitigation measures apply to all proposed federal or federally assisted undertakings and would be applied at project design and implementation phases.
- Cultural resource inventories would continue into the foreseeable future and would result in the continued identification of cultural resources. The cultural resource data acquired through these inventories and evaluations would increase overall knowledge and understanding of the distribution of cultural resources in the region.
- Effects on known cultural resource sites from authorized uses would be mitigated after appropriate Section 106 and Montana Protocol consultation requirements are met. Mitigation can include project cancellation, redesign, avoidance, data recovery, compensatory, off-site, and alternative mitigation options.
- Human occupation of North America over the last 10,000+ years has left its mark on all landforms, and sites may be on the surface or deeply buried. There may be areas of importance to contemporary Native Americans that are not readily identifiable outside of those communities.

- Degradation of known and undiscovered cultural resources from natural processes, such as erosion and fire, would continue regardless of avoidance of human-caused effects.
- The number of sites that could be affected by actions correlates with the degree, nature, depth, and quantity of surface-disturbing activities or landscape modifications in the area and the cultural sensitivity of the area.
- Potential effects on cultural resources and their settings from subsequent undertakings require separate compliance with NEPA and Section 106. They result in the continued identification and evaluation of cultural resources, and mitigation of adverse effects on properties eligible for listing in the NRHP. Examples are implementing the planning decisions or site-specific project proposals. In accordance with the Montana Protocol and standard BLM operating procedures, effects on cultural resources eligible for listing on the NRHP and potentially eligible cultural resources would be avoided or mitigated. If previously undiscovered resources were identified during an undertaking, work would be suspended while the resource is evaluated and mitigated to avoid any further effect.
- Consultation would continue with Native American groups to identify any traditional cultural properties or resource uses and to address effects. Through this process, effects would be minimized or eliminated, although residual effects and adverse effects, as defined by 36 CFR 800, would be possible.

For this analysis, effects on cultural resources would be considered significant if cultural resources listed on, or eligible for, listing on the NRHP were damaged, destroyed, lost, or removed from federal protections, or if the scientific information from the property were lost. Significant effects can occur even when appropriate mitigation measures are taken to reduce effects on cultural resources, such as in the case of excavation.

Nature and Type of Effects

There would be no immediate effects from the goals, objectives, and allocations noted in the alternatives, though there could be direct effects associated with future implementation of management actions. Indirect effects are those that would result from implementing the planning decisions at a later time and those that are cumulative.

Most effects are difficult to quantify because the locations of most cultural resources in the planning area are unknown, an assessment of most known locations is limited to brief surface evaluations, monitoring known locations is difficult, and planning-level alternatives typically do not identify specific areas for surface-disturbing activities.

Any activities that would involve surface-disturbing activities could have direct and indirect effects on cultural resources, including damaging, destroying, or displacing artifacts and features and constructing modern features out of character with a historic setting. Damaging, displacing, or destroying cultural resources could include removing artifacts from their situational context, breaking artifacts, or shifting, obliterating, or excavating features without appropriate scientific recording.

Indirect effects on cultural resources are those that change the character of a property's use or physical features in a property's setting that contribute to its historic significance (e.g., isolating the property from its setting). Another indirect effect would be from introducing visual, atmospheric, or audible elements that diminish the integrity of the property's historic features.

Construction activities resulting from implementing the planning decisions, such as facilities associated with energy development, could place modern features onto a landscape that did not have them previously, thereby juxtaposing modern industrial features onto a historic landscape. Additionally, any action that would increase human and worker presence, such as more people visiting a recreation area and workers brought in for construction operations, would risk illicit collecting of surface artifacts, resulting in a loss of scientific information.

The potential for undiscovered buried cultural resources and human remains exists despite previous archaeological surveys and investigations. Surface-disturbing activities would directly affect undiscovered cultural resources and human remains by exposing buried material, resulting in inadvertent artifact destruction or loss of scientific context. Indirect effects could result from the increased human presence, leading to possible illicit collecting of newly exposed materials.

Any actions that would result in reclaiming landscapes to pre-disturbance conditions would eliminate the indirect viewshed or setting effects for cultural resources. Reclamation would likely restore the natural landscape setting but may not restore the historic setting. However, direct effects on cultural resources or any unanticipated discoveries made would remain as they were—permanently destroyed or damaged by surface-disturbing actions.

Reclamation effects on undiscovered buried cultural materials or human remains would be similar to those noted above, namely that activities could expose buried materials, resulting in inadvertent artifact destruction or loss of scientific context. Additionally, the increased presence of workers during reclamation projects could lead to illicit collection of exposed materials.

Potential effects on cultural resources and their settings from subsequent undertakings would be addressed at the project design and implementation phase. Required separate compliance with Section 106 of the NHPA and Montana Protocol would result in the continued identification, evaluation, and mitigation of historic properties eligible for listing on the NRHP. Effects on cultural resources eligible for listing on the NRHP would be avoided, minimized, or mitigated. If previously undiscovered resources are identified during an undertaking, work would be suspended while the resource is evaluated and mitigated in order to avoid any further effect. Consultation would continue with Native American groups to identify any traditional cultural properties or resource values and to address effects. Through this process, effects on cultural resources would be minimized or eliminated.

W.3.8 Paleontological Resources

Potential effects on paleontological resources were evaluated using the recently revised PFYC system (IM 2008-009, PFYC System for Paleontological Resources on Public Lands). For the purpose of assessing effects, only those objectives and actions potentially affecting vertebrate fossils (e.g., dinosaurs, mammals, sharks, and fish or any animal with a skeletal structure) and scientifically significant invertebrate fossils were considered, as well as those objectives and actions potentially affecting outstanding geologic features.

Based on a reasonable prediction of possible future types of development (but not timing or location), the following effect analysis provides a general description of common effects on geological and paleontological resources from planning actions.

Paleontological resource effects primarily concern the potential destruction of nonrenewable fossil resources and the loss of information associated with these resources. They include destruction as the result of surface disturbance and the unlawful or unauthorized collection of fossil remains. Indicators of significant effects on paleontological resources are the loss of any fossil that could yield information important to prehistory or that embodies the distinctive characteristics of a type of organism, environment, period, or geographic region.

Outstanding geologic resource effects would be a management concern if they were to destroy, severely damage, or alter the geologic feature so they are no longer recognizable or lose their educational or scientific information.

Increased knowledge of paleontological resources and outstanding geologic features in the planning area could improve management of the resource and increase the public stewardship ethic.

Increased access to, or activity in, areas where resources are present or anticipated can increase the risk of vandalism or unauthorized collecting, which can destroy outstanding geologic features or paleontological resources.

For this analysis, effects on paleontological resources would be significant if there were substantial direct or indirect damage or destruction to, or loss of, vertebrate or scientifically significant invertebrate fossil resources.

More generally, effects on paleontological resources and outstanding geologic features could occur if reasonably foreseeable future actions were to result in the following:

- Conflict with paleontological resource management objectives and guidelines established by the BLM
- Disturb paleontologically sensitive geologic formations (PFYC Classes 3 through 5)
- Destroy or substantially damage or alter an outstanding geologic formation

The analysis is based on the following assumptions:

- Paleontological resource inventories were not completed. The significance of these resources was estimated, based on previous surveys and existing knowledge.
- Occurrences of paleontological resources are closely tied to the geologic units (e.g., formations, members, or beds) that contain them. The probability for finding paleontological resources can be broadly predicted from the geologic units present at or near the surface.
- Geologic mapping can be used for assessing the potential for the occurrence of paleontological resources using the BLM's PFYC system.
- Scientifically important fossils would continue to be discovered throughout the planning area. Discoveries are most likely to occur in geologic units classified as high potential PFYC Class 4 or Class 5, but known rich localities also have been found in the planning area in PFYC Class 3 units.
- Inventories conducted before surface disturbance or construction monitoring in high-probability areas may result in the identification and evaluation of previously undiscovered resources, which the BLM would manage accordingly.

- The potential for effects on both surface and subsurface paleontological and outstanding geological resources is directly proportional to the amount of surface disturbance associated with a proposed action.
- At the programmatic level of analysis, it is not possible to identify and evaluate areas of higher paleontological sensitivity or outstanding geological resources with respect to locations of proposed surface disturbance. Therefore, potential effects on paleontological and outstanding geological resources under each alternative can only be generally estimated, and they correlate directly to the amount of anticipated surface disturbance proposed under each alternative.

Nature and Type of Effects

There would be no direct effects from the goals, objectives, and allocations noted in the alternatives; there could be direct effects associated with some management actions. Exposed fossils can be damaged by natural weathering and erosion from wind and water, and this damage can be exacerbated by concentration of human use and activity. Other sources of human-caused damage are ground-disturbing activity, vandalism, unauthorized collection, and over-collection. Surface disturbance and excavations could affect fossils that could occur on or underneath the surface in areas containing paleontologically sensitive geologic units. Formations with high potential for yielding fossil vertebrates, combined with a high probability for effecting fossils during surface-disturbing activities results in the highest magnitude and severe effects.

Types of effects are the permanent loss of the paleontological resources and the scientific data they could provide through damage or destruction from surface-disturbing activities. Without removing some rock surrounding fossils, they would remain largely undetected; therefore, management actions that result in erosion do not necessarily damage paleontological resources. Excessive erosion, especially from other surface disturbance on exposed localities, could damage fossils at the surface.

Effects can typically be mitigated to below a level of significance by implementing paleontological mitigation identified in the BMPs or stipulations, such as construction monitoring, excavating materials, or avoiding surface exposures. Pedestrian surveys would typically be necessary before any surface-disturbing activities were authorized in those units with a high potential for yielding fossil vertebrates, such as in the Morrison formation; on-site monitoring could be required during construction.

If data recovery were the prescribed mitigation, this could also result in fossils being salvaged that may never have been unearthed as the result of natural processes. These newly exposed fossils would become available for scientific research, education, display, and preservation into perpetuity at a public museum. Unmitigated surface-disturbing activities could dislodge or damage paleontological resources and features that were not visible before surface disturbance.

An increase in visitors to, workers in, or access to paleontological localities or sensitive areas could increase the potential for loss of paleontological resources by vandalism and poaching (Eagles et al. 2002). These effects are difficult to mitigate to below the level of significance, but they can be greatly reduced by increasing public awareness about the scientific importance of paleontological resources through education, community partnerships, and interpretive displays and by informing the public about penalties for unlawfully destroying or poaching these resources from BLM-administered lands.

W.3.9 Visual Resources

The VRI classes form the basis for analysis in this section. Although VRI classes use the same numerical scale (i.e., Class I through Class IV) as VRM classes, they are defined differently. VRI classes are the categories the BLM uses to classify the visual character of the landscape and are a way to communicate the degree of visual quality in the area. Generally, VRI Class I indicates high visual quality, and VRI Class IV indicates lower visual value. For more information on the VRI process, refer to BLM Handbook H-8410-1, Visual Resource Inventory (BLM 1986). The VRI is on file at the LFO.

Effects on visual resources are assessed by comparing the VRI class of an area to the VRM class for the same area and assessing the potential for change in the three components of VRI classification (scenic quality, sensitivity level, and distance zones). The management of resources and resource uses and how those actions might effect scenic resources is also examined.

Because lands classified as VRI Class I are considered special areas by the BLM, applying anything less than VRM Class I objectives could allow development that would result in more than low levels of changes to the landscape or attract the attention of the casual observer. Any landscape managed as VRM Class IV would be subject to significant visual change regardless of VRI Class.

Lands classified as VRI Class IV are not generally able to absorb more landscape modifications due to the low level of scenic quality and inability to absorb the visual presence and contrast created by new features. Collocating features in an already culturally modified landscape would change the natural character to a greater degree in these locations, but would reduce the likelihood for visual effects to sprawl into visually intact landscapes. Managing these landscapes as VRM Class III or Class IV would allow for modifications that could result in moderate to major changes to scenic quality. By managing these landscapes as VRM Class I or Class II, the scenic quality of the landscape would likely remain the same. In other words, VRI classes with high numbers that are assigned to VRM classes with lower numbers would maintain the visual quality of visual resources.

Conversely, lands classified as VRI Class I or Class II are less able to absorb landscape modifications. As such, lands classified as Class II have the potential to experience a greater level of visual dominance from VRM Class III or Class IV management. VRI Class I lands are always managed as VRM Class I. The visual effect on VRI Class II lands would likely be found to be of more significance than in VRI Class III or IV, because of the combination of visual contrast and value reduction of high scenic value areas versus low scenic value areas.

VRI Class IV indicates lower visual value. Assigning a VRM class to these lands can at best maintain the characteristic visual landscape.

VRM and VRI classes are summarized in **Table W-11**, Visual Resource Classes.

When assessing scenic quality, seven factors are considered: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. Of these factors, decisions in the RMP have the highest potential to change vegetation, color, or cultural modifications. Where cultural modifications would be allowed, there could be a change in the variety of vegetation forms, patterns, or texture from such activities as construction, vegetation removal, and soil composition changes. Furthermore, where cultural modifications would be allowed to the extent that the basic components of the landscape

Table W-11
Visual Resource Classes

Visual Resource Class	Acres of BLM-Administered Surface Lands in Decision Area	Percent of BLM-Administered Surface Lands in Decision Area
VRM Class		
I	15,700	2
II	105,000	16
III	193,300	30
IV	280,500	43
Unclassified	56,700	9
Total	**651,200**	**100**
VRI Class		
I	2,700	<1
II	172,100	26
III	159,200	24
IV	317,200	49
Total	**651,200**	**100**

Source: BLM GIS 2015a

(e.g., vegetation, soil, and rock) changed drastically, the variety, contrast, and harmony of color could change as well. Under no alternative would the scenic quality be anticipated to significantly improve.

When assessing sensitivity, six factors are considered: type of users, amount of use, public interest, adjacent land uses, special areas, and other factors. Of these factors, decisions in the RMP have the highest potential to change the types of users, amount of use, and special areas. The designated use of BLM-administered lands can influence the types of users and the amount of use. Also, the designated use of BLM-administered lands can result in creating special areas to preserve the natural landscape setting.

When assessing distance zones, landscapes are subdivided into three distance zones based on relative visibility from travel routes or observation points. The three zones are: foreground-middle ground zone (areas seen from highways, rivers, or other viewing locations which are less than 3 to 5 miles away), background zone (seen areas beyond the foreground-middle ground zone but usually less than 15 miles away), and seldom seen zone (areas not seen as foreground-middle ground or background, i.e., hidden from view). Decisions in the RMP are not likely to change these distance zones, unless access to an area is increased or decreased. This could, for example, change a seldom seen zone to a foreground-middle ground zone or background zone.

The scenic quality of the planning area is of national significance and an important part of the local and state economy. Many people live and recreate in the planning area because of its remoteness and visual qualities. The visual setting is an important part of local lifestyles and, for most travelers, the scenery or visual resource is an important part of their visit. Both tourists and residents drive across this landscape expecting to see open mountain vistas, coulees, meandering waterways, and vast rolling lands.

The VRI involves identifying the visual resources of an area and assigning them to inventory classes using the BLM's resource inventory process. The process involves rating the visual appeal of a tract of land, measuring public concern for scenic quality, and determining whether the tract of land is visible from travel routes or observation points. The results of the VRI become an important component of the area's RMP because the RMP establishes how BLM-administered lands would be used and allocated for different purposes. It is developed through public participation and collaboration. Visual values are considered throughout the RMP process, and the area's visual resources are then assigned to the management classes with established objectives. The VRI classes do not establish management direction and are not used as a basis for constraining or limiting surface-disturbing activities, but they are considered a baseline for existing conditions.

The assignment of VRM classes is ultimately based on management decisions made during the RMP process, which must take into consideration the value of visual resources. During the process, inventory class boundaries can be adjusted, as necessary, to reflect these resource allocation decisions. The goal of VRM is to minimize the visual effects of all surface-disturbing activities, regardless of the class to which an area is assigned. Current VRM classes are summarized in **Table 3-37**, Visual Resource Management Classes, and are displayed in **Figure 2-5**. Objectives of the four VRM classes are included in **Section 3.2.10**.

The indicator of effects on visual resources is the following:

- A proposed VRM class would allow changes to the landscape that could alter its character enough that future VRIs would result in a reclassification. For example, if an area currently managed for VRM Class IV has VRI Class II lands, then the level of change allowed by VRM Class IV could alter the landscape to the point that future VRIs could result in reclassifying the area to VRI Class III or Class IV.

The analysis includes the following assumptions:

- The scenic vistas in the planning area would become more sensitive to visual change; in other words, they would increase in value over time.
- Scenic resources would become increasingly important to residents of, and visitors to, the area.
- Visitors to BLM-administered lands or residents living near BLM-administered lands are sensitive to changes in visual quality.
- Activities that cause the most contrast and are the most noticeable to the viewer and the public would be considered to have the greatest effect on scenic quality.
- The severity of a visual effect depends on a variety of factors, including the size of a project (i.e., area disturbed and physical size of structures), the location and design of roads and trails, and the overall visibility of disturbed areas.
- The more protection that is associated with the management of other resources and special designations, the greater the benefit to visual resources of the surrounding viewsheds.
- VRM class objectives apply to all resources. Class objectives would be adhered to through project design, avoidance, or mitigation.
- Visual resource design techniques and BMPs would be implemented to mitigate potentially harmful effects.
- WSAs are and would continue to be managed according to BLM Manual 6330, Management of Wilderness Study Areas (BLM 2012c), which includes management as VRM Class I. Because activities in WSAs must meet the nonimpairment criterion, which generally restricts new

surface disturbance, it is assumed that a WSA would generally protect visual resources in those areas.

- Visual contrast ratings would be required for all projects. The visual contrast rating system would be used as a guide to analyze site-specific effects from projects as well as project design and placement. Projects would be designed to minimize their visual effects in order to conform to the area's VRM class objective. This would allow the BLM to reduce effects on a site-specific basis to ensure compliance with the assigned VRM class.
- Areas without either VRI or VRM classes cannot be effectively managed for visual resources. Thus, all BLM-administered lands in the LFO are assigned both VRI and VRM classes. Classes are identified for BLM-administered lands requiring comprehensive management of visual resources.

Fluid minerals stipulations (**Appendix L**) are established for a variety of resources and resource uses, such as soils, water, vegetation communities, cultural and heritage resources, paleontological resources, lands with wilderness characteristics, fluid leasable minerals, recreation and visitor services, lands and realty, ACECs, national trails, and WSRs. Effects on visual resources from stipulations are addressed in a consolidated discussion under mineral resources.

Nature and Type of Effects

Restoration and rehabilitation management actions involve restoring areas using appropriate vegetation. Invasive plant species management actions involve controlling the distribution and spread of invasive species and noxious weeds. These vegetation management actions involve using physical, mechanical, educational, biological, herbicidal, and fire treatments that alter the composition and distribution of vegetation or create desired vegetation mosaics.

In the short term, these treatment methods can leave the ground surface scarred and devoid of vegetation, thereby changing the form and texture of vegetation across the landscape. It can also introduce new colors to the treated area by killing or removing vegetation and leaving the soil surface exposed. Motorized vehicle activity can also be introduced to an area where it was not previously. In the long term and if properly mitigated, once desired vegetation becomes established and matures, it can create a landscape with vegetation forms, colors, and textures that are appropriate to the local visual landscape. Appropriate vegetation would also minimize the spread of wildfires capable of diminishing the quality of scenic resources.

Wildfire ecology and management actions involve a variety of fire management categories. It also involves actions for ES&R, vegetation and fuels treatment, fire retardant use, and prescribed fire. These actions alter the condition, composition, and distribution of vegetation. In the short term, these tactics and treatments can leave the ground surface scarred and devoid of vegetation, thereby changing the form and texture of vegetation across the landscape, as well as the landform in some instances. They can also introduce new colors to the area by removing vegetation and leaving the soil surface exposed or discolored from fire retardant.

In the long term, fire suppression activities can result in changes, such as recontouring landforms and creating fire lines and routes, which can remain visible without proper mitigation. But fire suppression and prescribed fire can also minimize the spread of unplanned fires capable of diminishing the quality of visual resources. Also, once desired vegetation becomes established and matures after prescribed fire, it can create a landscape with vegetation forms, colors, and textures that are appropriate to the visual landscape. Appropriate vegetation would also minimize the spread of wildfires capable of diminishing the quality of scenic resources.

Table 4-31, Acreage Summary of VRI Class by VRM Class, identifies how VRM class designations would be applied to lands for each alternative.

Visual resources would receive more protection where VRM classes are more protective than what is commensurate with VRI class values. For example, a VRM Class II designation on VRI Class III land would protect visual resources from changes that could occur under a VRM Class III designation. Although VRI Class III land lacks the visual resource attributes of VRI Class II lands, designating the land as VRM Class II ensures future changes to visual resources are more restrictive than if the land were assigned a commensurate VRM Class III designation. This form of management acknowledges that the existing character of the landscape should receive fewer changes in the future than it did in the past. Conversely, visual resources would receive less protection where VRM classes are less restrictive than VRI classes.

BLM-administered lands are assigned to VRM classes with established objectives that state the allowable change to the characteristic landscape. BLM-administered lands that lack a VRM class designation are at greater risk for development capable of changing the characteristic landscape than lands assigned to a VRM class. This is because there are no established objectives for how to manage visual resources. Assigning VRM classes to undesignated lands can reduce the risk of development capable of changing the landscape characteristic.

Lands with wilderness characteristics have a high degree of naturalness. Managing lands to protect wilderness characteristics directly preserves the naturalness and associated visual resources because activities and development would be minimized. Conversely, not identifying management actions to maintain and protect wilderness characteristics would change the natural character of the setting and visually contrast with the associated visual resources.

Table 4-32, Acres Open to Nonenergy Solid Minerals Leasing by VRI Class, displays those lands that are open to nonenergy solid minerals leasing by VRI class.

Mineral management actions identify areas open and closed to mineral development. Mineral development involves roads, pipelines and electrical lines, facilities, excavation or grading, and lights:

- New roads would add artificial elements to undeveloped areas. Improving roads typically increases the visual contrast of the road with the adjacent landscape. Roads lack vegetation and create an abrupt vegetation edge along the roadside. Smooth roads would contrast against the moderately coarse texture of the terrain. This would affect visual resources by dividing the landscape with areas that lack vegetation, altering the natural topography, the texture, and color of the land surface. The visibility of the new and improved roads would vary, depending on viewer distance and location, topography, and screening vegetation.
- New pipelines and electrical lines would add artificial elements to undeveloped areas. The form, line, and texture of these structures would not resemble nearby structures, unless they are collocated with similar structures. In particular, pipelines would divide the landscape with strips of land lacking vegetation, and electrical lines would introduce prominent vertical elements. The visibility of the new pipelines and electrical lines would vary, depending on viewer distance and

location, topography, color and composition of pipelines and electrical line poles, and screening vegetation.

- Mineral development facilities would add artificial elements to undeveloped areas. These areas would be cleared of vegetation, thereby leaving a clearing that contrasts with the surrounding landscape. The form, line, color, and texture of these facilities would not resemble nearby structures, unless they are collocated with similar existing industrial facilities. Also, the facilities would be sources of activity that are not typically found in undeveloped areas. The visibility of the facilities would vary, depending on viewer distance and location, topography, color and composition of facilities, and screening vegetation.
- Lights would be installed for safety and to illuminate work areas at night. This would reduce nighttime darkness by adding light to areas lacking sources of artificial light. As a result, this would diminish opportunities for viewing visual resources between dusk and dawn. In particular, this would affect stargazing opportunities.

Mineral development would not occur in areas that are closed, thereby preventing activities that could alter visual resources. Closing areas to mineral development would directly preserve visual resources by preventing mining activities and structures that could alter viewsheds, vegetation, landforms, colors, and adjacent scenery. Closing areas to mineral development would protect all visual values for all visual resources inventory factors from mineral development, providing some protection against the reclassification of areas because of changes to the scenic quality rating. In general, alternatives with more acres closed would provide more protection to high quality visual areas.

Table 4-33, Acres Open to Fluid Minerals Leasing by VRI Class, displays those lands that are open to fluid minerals leasing without year-round restrictions by VRI class (i.e., not subject to fluid minerals NSO or CSU stipulations).

Fluid minerals management actions identify areas open and closed to fluid mineral leasing. **Table W-1** lists projected future oil and gas exploratory and development activity and associated disturbance through 2033, based on the management actions (constraints) for the draft alternatives. Subsequent mineral development in areas open to fluid mineral leasing includes associated infrastructure, such as roads, pipelines and electrical lines, facilities, and lights, which are described above for *Nonenergy Solid Leasable Minerals*.

In open areas, fluid mineral leasing may be subject to stipulations, such as NSO, CSU, and TL, which restrict the location and types of subsequent fluid mineral development. Stipulations would minimize effects on visual resources from mineral actions. Applying NSO stipulations would provide direct protection for visual resources by preventing surface occupancy and use; these could alter viewsheds, vegetation, landforms, colors, adjacent scenery, and cultural modifications associated with the scenic quality. However, applying NSO on intermingled BLM-administered lands may shift effects on adjacent lands not administered by the BLM that would not be subject to stipulations or VRM classification.

Fluid mineral CSU stipulations would protect visual resources to a lesser extent. This is because surface-disturbing activities would only have to be modified or moved to a different location. Fluid mineral CSU stipulations would provide some protection of all visual values for all visual resources inventory factors, providing some protection against the reclassification of areas because of changes to the scenic quality rating. In general, alternatives with more acres protected by stipulations would provide more protection to the scenic quality rating.

Stipulations in areas open to fluid mineral leasing are used to control subsequent activities that degrade visual resources. As a result, subsequent fluid mineral development in areas open to fluid mineral leasing without stipulations would have a greater effect on visual resources.

Table 4-34, Acres Open to Locatable Mineral Entry by VRI Class, displays those lands that are open to locatable mineral entry by VRI class.

Locatable mineral management actions identify areas withdrawn from locatable mineral entry. Locatable mineral development involves roads, pipelines and electrical lines, facilities, and lights, which are described above in *Nonenergy Solid Leasable Minerals*.

Locatable mineral development would not occur in areas that are withdrawn from locatable mineral entry, thereby limiting mining to only valid existing rights that could alter visual resources. This would directly preserve visual resources by limiting mining and structures that could alter viewsheds, vegetation, landforms, colors, and adjacent scenery. In high quality visual areas, closures would provide some protection against the reclassification of areas from a low VRI class number to a higher VRI class number in the future. In general, alternatives with more acres withdrawn would provide more protection to high quality visual areas.

Table 4-35, Acres Open to Mineral Materials Disposal by VRI Class, displays those lands that are open to mineral materials disposal by VRI class.

Mineral material management actions identify areas open and closed to mineral material disposal. At a minimum, this involves excavation and roads, which are described above in *Nonenergy Solid Leasable Minerals*.

Mineral development would not occur in areas that are closed, thereby preventing activities that can alter visual resources. Closing areas to mineral development would directly preserve visual resources by preventing mineral material disposal activities that could alter viewsheds, vegetation, landforms, colors, and adjacent scenery. Closing areas to mineral development would protect all visual values for all visual resources inventory factors from mineral development, providing some protection against the reclassification of areas because of changes to the scenic quality rating. In general, alternatives with more acres closed would provide more protection to the scenic quality rating.

Table 4-36, Acres Open to Livestock Grazing by VRI Class, displays those lands that are open to livestock grazing by VRI class.

Livestock grazing may cause indirect effects on visual resources through trampling, compaction, and vegetation removal. Watering areas are especially prone to disturbance, where concentrated vegetation and soil damage can occur.

Administration of grazing permits has the potential to effect visual resources. For example, permittees can drive cross-country when administering their grazing permits. These cross-country motorized activities can have an effect on visual resources through route proliferation that scars the terrain, especially during wet seasons. Structures associated with livestock grazing management (e.g., fences, stock ponds, water savers, cattle guards, stock water pipelines, storage tanks, water tanks, and supplement feeders) could create visual intrusions.

Modifications to grazing practices to improve land health needed as a result of overgrazing would also help restore the visual quality of the vegetation in the area. This could allow more time for vegetation to recover after being grazed.

Casual recreation use generally would not affect visual resources or the visual character of the area.

Management objectives for RMAs target specific recreation experiences. VRM classes are established to manage visual resources to achieve the targeted outcomes. VRM Classes I and II are established for RMAs that require low levels of development to achieve the management objectives. VRM Classes III and IV are established for RMAs that require more development to achieve the management objectives and, therefore, more landscape alteration. Although the VRM classes are used to provide the appropriate setting for identified recreation activities, they also influence the management of visual resources by, for example, limiting additional landscape modifications that may diminish the appeal of recreation lands and associated recreational outcomes. **Table 4-37**, Acres Limited to Designated Routes by VRI Class, displays those lands that are limited to designated routes by VRI class.

Motorized, mechanized, nonmotorized, and nonmechanized travel can all effect visual resources. Effects on visual resources are scarred terrain, trampled vegetation, and fugitive dust. These effects are generally confined to the route itself.

Limiting use or travel to routes can provide a measure of assurance against trail proliferation and promote the recovery of natural processes in the landscape, thereby potentially maintaining scenic quality. Effects are most notable from motorized vehicles because travel routes can become noticeable after only a few passes.

Closing areas to OHVs can help maintain scenic quality by preventing the types of effects that occur from such use. Scenic quality could be improved over the long term as travel routes are rehabilitated. **Table 4-38**, Acres Open to ROWs with Standard Restrictions by VRI Class, displays those lands that are open to land use authorizations without restrictions (i.e., not subject to ROW exclusion or avoidance restrictions) by VRI class.

Land use authorizations, such as those for pipelines, transmission lines, access roads, and communication sites, can affect visual resources by adding cultural modifications to the landscape and creating disturbances that change the vegetation pattern. Both of these can affect the color of the landscape and, in extreme cases, the landform. In addition, these types of developments can affect the viewshed of sensitive landscapes next to the area of development. The magnitude of these effects would be the greatest where scenic quality or sensitivity is highest.

Furthermore, the creation of new access roads, if needed, could affect the distance zone of the area. If development were to occur in a seldom seen area, new access roads could make the development more accessible and thus visible to the public. This could change the distance zone from seldom seen to background or foreground/middle ground.

Managing ROW exclusion areas would protect visual resources by prohibiting roads; pipelines; transmission lines; communication sites; wind, solar, and geothermal development; and other land use authorizations that alter the landscape.

ROW avoidance areas would provide limited protection by requiring mitigation measures to minimize altering the physical setting. In other areas, utilities, such as transmission lines, access roads, and related development, could permanently alter the visual quality of an area, especially if they do not repeat the basic elements of the landscape. **Table 4-39**, Acres Open to Wind ROWs with Standard Restrictions by VRI Class, displays those lands that are open to wind energy development without restrictions (i.e., not subject to exclusion or avoidance restrictions) by VRI class.

Wind development can effect visual resources by adding cultural modifications to the landscape, such as new structures, roads, and utility lines, and by creating disturbances that change the vegetation pattern. Both of these can affect the color of the landscape and, in extreme cases, the landform. The magnitude of these types of effects would be the greatest where scenic quality or sensitivity is highest. In addition, these types of developments have the potential to effect the viewshed of sensitive landscapes next to the area of development.

Furthermore, the creation of new access roads could affect the distance zone of the area. If development were to occur in a seldom seen area, new access roads could make the development more accessible and thus visible to the public. This could change the distance zone from seldom seen to background or foreground/middle ground.

Managing ROW exclusion areas for wind would protect visual resources by prohibiting such development, including ancillary facilities, such as roads and transmission lines. Managing ROW avoidance areas for wind would provide limited protection to visual resources by requiring mitigation measures to minimize alteration of the physical setting. In areas outside of avoidance areas, wind energy development facilities could permanently alter the visual quality, especially if they do not repeat the basic elements of the landscape.

Table 4-40, Acres Open to Forest Product Sales or Harvest by VRI Class, displays those lands that are open to forest product sales or harvest by VRI class.

Managing for commercial forest products would remove trees from BLM-administered lands, which would alter the composition and distribution of vegetation. In the short term, this can leave the ground surface scarred and devoid of vegetation, thereby changing the form and texture of vegetation across the landscape. It can also introduce new colors by removing vegetation and leaving the soil surface exposed. In the long term, once vegetation becomes established and matures, it can create a landscape with vegetation forms, colors, and textures that are uniform and repetitive, depending on reforestation practices.

In general, ACECs would indirectly preserve visual resources. They would restrict surface-disturbing activities that would affect the relevant and important values that the ACEC is designed to protect. In areas where the relevant and important values of a potential ACEC include a scenic value, visual resources would be directly preserved. In addition, the viewsheds of adjacent lands would be indirectly maintained, helping to preserve the scenic quality in those areas too.

Pending congressional action, interim protective management is applied to stream segments identified as eligible or suitable for inclusion in the NWSRS to protect the streams' free-flowing nature, ORVs, and water quality. Development and activities along stream segments classified as wild or scenic are limited in order to maintain stream segment values and to minimize disturbances to the character of the landscape. Furthermore, the BLM would manage stream segments with an identified scenic ORV to protect such value. Therefore, visual resources along eligible or suitable stream segments would be maintained.

In general, WSAs would provide direct preservation of wilderness characteristics by restricting surface-disturbing activities and managing the areas as VRM Class I. Development and activities are limited, and a VRM Class I designation is assigned in order to maintain and protect wilderness characteristics. These include natural landforms and vegetation, which are components of the visual setting. However, effects on visual resources can still occur. For example, a prescribed fire would restore the WSA to its natural character, but it would also create short-term effects, such as changing the form and texture of vegetation across the landscape.

W.3.10 Lands with Wilderness Characteristics

Indicators of effects on lands with wilderness characteristics are the following:

- Degradation of wilderness characteristics to a level at which the wilderness characteristic would no longer be present in the specific area.
- Roadless areas of sufficient size—Effects would result from building roads.
- Naturalness (apparent naturalness, not ecological naturalness)—Effects would result from development of facilities or vegetation manipulations that make the area appear less natural.
- Opportunities for solitude or primitive and unconfined recreation—Effects would result from increases in visitation, development of facilities, increases in motorized or mechanized routes, or increases in management constraints on primitive recreational use, such as restrictions on campfires, limiting camping to designated sites, and closing areas to camping.
- Supplemental values—Effects would result from any action that degrades the inventoried values.

The analysis is based on the following assumptions:

- Management and activities outside of lands with wilderness characteristics will not affect those characteristics so long as they are not pervasive and omnipresent.
- Any proposed action in an area to be managed to protect wilderness characteristics would be processed in accordance with the policies stated in BLM Manual 6320 (BLM 2012d).

Nature and Type of Effects

Wilderness characteristics are primarily influenced by actions that effect the undeveloped nature of the area or activities that increase the sights and sounds of other visitors. These actions are analyzed for the degree to which use or developing a resource is compatible with protecting wilderness characteristics. These actions are also analyzed for the degree to which protecting wilderness characteristics enhances other multiple-use benefits on or near the management area. Examples are recreational opportunities, protection of watersheds, wildlife habitat, natural plant communities, cultural resources, scenic quality, and similar natural values (BLM 2012d).

Management actions that could affect an area's natural appearance could include the presence or absence of roads and trails, use of motorized vehicles on those roads and trails, fences and other structural range improvements, nature and extent of landscape modifications, or other actions that result in or prevent surface-disturbing activities. All of these activities affect the presence or absence of human activity and, therefore, could affect an area's natural appearance. Prohibiting surface-disturbing activities and new developments in lands with wilderness characteristics would protect naturalness.

Two other wilderness characteristics—outstanding opportunities for solitude or primitive and unconfined types of recreation—are related to the human experience in an area.

Visitors can have outstanding opportunities for solitude or for primitive, unconfined recreation under the following conditions:

- When the sights, sounds, and evidence of other people are rare or infrequent
- Where visitors can be isolated, alone, or secluded from others
- Where the use of the area is through nonmotorized or nonmechanized means
- Where there are no or only minimal developed recreation facilities

Managing lands for the protection of wilderness characteristics as VRM Class II would contribute to the protection of the wilderness characteristics. Under VRM Class II objectives, the level of change to the landscape should be low; management activities may be seen, but should not attract the attention of the casual observer.

Wilderness characteristics of naturalness could be maintained or enhanced in the long term from vegetation treatments. Properly designed treatments improve ecosystem composition, structure, and diversity, which would improve the overall apparent naturalness of the area. In the short term; however, wilderness characteristics of naturalness and solitude would be effected due to the noticeable unnatural manipulation of the environment and an increase in human presence and vehicle traffic.

Livestock grazing may indirectly change wilderness characteristics in the long term by trampling and compacting soils, grazing vegetation, and incising channels, all of which could change the naturalness characteristic. Structures associated with livestock grazing management, such as fences, stock ponds, water savers, cattle guards, stock water pipelines, storage tanks and water tanks, and supplemental feeders, could directly affect naturalness and opportunities for solitude and primitive and unconfined recreation in the long term. These types of development would be site specific, though, and would not likely affect a unit as a whole.

Earth-moving activities, such as energy and minerals development, forestry, and ROW development, can bury weed seeds and facilitate their germination. In addition, livestock can contribute to the spread of weeds by the following (Belsky and Gelbard 2000, p. 3):

- Transporting weed seeds from one area to another on their coats and feet and through digestive processes
- Preferentially grazing native plant species over weed and invasive species
- Creating patches of bare, disturbed soils that act as weed seedbeds
- Creating patches of nitrogen-rich soils, which favor some weed species

- Accelerating soil erosion that buries weed seeds and facilitates their germination

If weed infestations become widespread and require treatment, effects would include those previously described for vegetation treatments.

Allowing any type of energy or mineral development (fluid, nonenergy solid, locatable, mineral materials, and renewable energy) would result in surface disturbance that would diminish the area's natural characteristic. Any new roads authorized for access to the development area could eliminate wilderness characteristics of the entire unit if the road were to bisect the unit so that it would no longer be considered a roadless area of adequate size. In addition, regular access to the lease area or mine site by developers would reduce the opportunities for solitude.

Issuing new ROWs would effect wilderness characteristics. This is because they would require vegetation clearing and access roads and would increase human presence, machinery, noise, weed potential, and habitat fragmentation. This would degrade wilderness characteristics over the long term. BMPs, stipulations for fluid minerals, and mitigation measures, such as ROW exclusion and avoidance areas, would be implemented to minimize effects.

Managing BLM-administered lands to provide dispersed recreation could directly degrade wilderness characteristics through human disturbance, noise, weed introduction and spread, and effects on vegetation. Depending on the type of activities allowed in the area, effects would vary with the duration and intensity of any recreation and could be short term or long term.

Allowing motorized and mechanized travel on designated routes would effect wilderness characteristics. Increased sights and sounds of other people would reduce opportunities for solitude. Motorized and mechanized access would also reduce opportunities for primitive recreation. The existence of motorized and mechanized trails could reduce the natural appearance in the vicinity of the trails. Effects would be localized and might not be experienced in the unit as a whole.

Prohibiting motorized and mechanized use on lands managed for the protection of wilderness characteristics would protect wilderness characteristics by restricting activities that could affect natural appearance and opportunities for solitude or primitive and unconfined recreation. On a more regular basis, motorized and mechanized use by established livestock grazing permittees and maintenance of existing range improvement facilities would effect opportunities for solitude during the time of use. General administrative (BLM) access on these lands would be maintained and would have a similar effect.

Management for wildfire could affect lands with wilderness characteristics. In areas where suppression is a priority, there is the potential for vegetation modification to prevent the spread of wildfires, potentially reducing the naturalness of appearance. Suppression activities can also reduce naturalness. In the long term, fire can be a tool used to maintain or enhance naturalness. Where appropriate, prescribed fire would be used as a management agent to achieve or maintain support for healthy functioning vegetation.

Where lands managed to protect wilderness characteristics overlap eligible or suitable WSR segments or ACECs, management of these other areas could also indirectly protect wilderness characteristics due to the protective measures proposed for the other areas. These protective measures would include complementary management objectives, where lands with wilderness characteristics would be managed to protect them. This could offer some indirect protection of wilderness characteristics for units managed primarily for other resource considerations.

W.3.11 Cave and Karst Resources

Indicators of effects on cave resources are the following:

- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the cave resources
- Loss of integrity, and in some cases a loss of archaeological information, resulting from physical damage or destruction of all or parts of a cave
- Health of biological communities of cave resources
- Alterations to the level of public access to caves, which may result in increased use, erosion, bat disturbance and abandonment, looting, and vandalism
- A lack of action, which, in certain cases, can allow a cave to deteriorate
- Groundwater contamination and dewatering as a result of fluid mineral exploration and development, which could significantly affect karst integrity and groundwater resources

The analysis is based on the following assumptions:

- Education of the public increases support for protecting caves and bats but also increases visitation.
- Damage, theft, and vandalism are likely to increase with increased visitation.
- Bats in caves could be effected by visitor disturbance (noise and light) and spread of pathogens.
- Cave resource protection and mitigation measures apply to all proposed federal or federally assisted undertakings and will be applied at project design and implementation phases.
- Cave resources would be managed as mandated under the FCRPA to protect unique, nonrenewable, and fragile biological, geological, hydrological, cultural, paleontological, scientific, and recreational values.

Nature and Type of Effects

Effects on known cave resources occur through excavation, theft, vandalism, and disturbance to biological resources. Typically, these effects are found most often in caves concentrated near roads and trails; they may increase with additional visitation to the planning area.

Effects on unknown caves and karsts occur through accidental discovery during some other activity, generally recreation or fluid mineral development. Unique cave features may be disturbed before being properly assessed and documented; unknown karst features may be discovered through fluid mineral development, which may result in the dewatering of the karst feature or contamination with fluid mineral constituents.

W.3.12 Minerals and Energy

Energy Solid Leasable Minerals

Indicators of effects on energy solid leasable minerals include the amount of land managed as unacceptable for further consideration for coal leasing.

The energy solid leasable minerals analysis is based on the following assumptions:

- There are no federal mineral leases or licenses for coal or oil shale in the planning area.
- As discussed in **Section 3.3.1**, because of the lack of federal coal and oil shale activity in the planning area, the BLM does not have management for coal and oil shale exploration and development. If a company expresses interest in developing these resources, the BLM would complete a NEPA analysis in an RMP amendment.

Oil and Gas Leasables

Indicators of effects on oil and gas leasables are the following:

- The amount of land closed to or withdrawn from fluid mineral leasing
- The amount of land open to fluid mineral leasing subject to NSO stipulations
- The amount of land open to fluid mineral leasing subject to CSU stipulations
- The amount of land open to fluid mineral leasing subject to TL stipulations
- The amount of land managed as ROW avoidance
- The amount of land managed as ROW exclusion

The oil and gas leasables analysis has the following assumptions:

- Valid existing leases would be managed under the stipulations in effect when the leases were issued. Oil and gas operations on existing leases would be subject to COAs by the BLM Authorized Officer.
- Management actions also apply to oil and gas leasing on lands overlying federal mineral estate. This includes federal mineral estate underlying BLM-administered lands, private lands, state lands, and lands administered by other federal and state agencies. Federal mineral estate beneath National Forest System lands is not part of the decision area for this planning effort.
- If an area has been leased, it could be developed; however, not all leases would be developed in the life of this RMP.
- As discussed in **Section 3.3.1**, the primary known oil and gas fields in the planning area are largely played out. The level of oil and gas activity in the planning area is likely to remain relatively stable for the life of the RMP; the possible exception would be the Heath Shale play, where activity could greatly increase if this play were to prove to be economic. The RFD scenario estimates that up to 658 wells will be drilled in the planning area during the life of this RMP under current constraints, not including the deferral (BLM 2014a, p. 23). An estimated 75 of these wells would be drilled on federal mineral estate (**Table W-1**).

Nonenergy Solid Leasable Minerals

Indicators of effects on nonenergy solid leasable minerals are the following:

- The amount of land closed to nonenergy solid mineral leasing
- The amount of land managed as ROW avoidance
- The amount of land managed as ROW exclusion

The nonenergy solid leasable minerals analysis is based on the following assumptions:

- Valid existing prospecting permits and leases would not be effected by the closures proposed under this RMP.
- Management actions also apply to nonenergy solid mineral leasing on lands overlying federal mineral estate. This includes federal mineral estate underlying BLM-administered lands, private lands, state lands, and lands administered by other federal and state agencies.
- If an area has been leased, it could be developed; however, not all leases would be developed in the life of this RMP.
- There is no known occurrence of traditional nonenergy solid leasables (e.g., sodium, phosphate, potash, and others) in the mineral estate decision area. Therefore, the only portions of the decision area assumed to have nonenergy solid leasable potential are acquired minerals, which could contain hard rock minerals, such as gold, silver, and garnets (commonly known as hard rock leasables). Even on these acquired lands, the potential for development of these minerals is low. As discussed in **Section 3.3.1**, there are generally two to three small-scale prospecting permits active in the decision area at any given time. No nonenergy solid mineral leases have been issued in the planning area.
- As discussed in **Section 3.3.1**, nonenergy solid leasable mineral prospecting and development is anticipated to stay the same for the life of this RMP.

Locatable Minerals

Indicators of effects on locatable minerals are the amount of land withdrawn from locatable mineral entry and the amount of land proposed for withdrawal from locatable mineral entry.

The locatable minerals analysis is based on the following assumptions:

- Valid existing rights would not be effected by the withdrawals proposed under this RMP.
- Areas proposed for withdrawal under this RMP would be withdrawn.
- If a locatable mineral operation is proposed on federal minerals beneath private or state lands (i.e., split-estate), the operator would attempt to obtain the owner's consent. In some cases, the operator would still have to file a notice or plan of operations with the BLM. However, most of the split-estate containing federal minerals and private or state surface in the decision area that is open to mineral entry has low potential for locatable mineral development. If the LFO were to receive a notice or plan of operations, it would be processed in accordance with 43 CFR 3809 and 3814, and BLM Handbook 3809-1 Section 8.3 (BLM 2012e).
- As discussed in **Section 3.3.1**, locatable mineral development is expected to stay the same for the life of this RMP. Most of the locatable mineral development in the decision area is in the mountainous areas of Fergus County. Most of the future development is also expected to be in these areas.

Mineral Materials

Indicators of effects on mineral materials (salable minerals) are the following:

- The amount of land closed to mineral material disposal
- The amount of land managed as ROW avoidance

- The amount of land managed as ROW exclusion

The mineral materials analysis is based on the following assumptions:

- Existing mineral material permits would not be affected by the closures proposed under this RMP.
- Management actions apply to all lands with federally owned mineral materials. This includes split-estate lands where mineral materials were included in the mineral estate severed from the surface estate and the surface estate is private or state owned.
- As discussed in **Section 3.3.1**, mineral material development is expected to stay at roughly the same level for the life of this RMP.

Management of certain resources would result in fluid minerals leasing stipulations, closures, or recommendations for withdrawal under some or all of the alternatives and would therefore effect minerals and energy resources. These resources are soils, water, vegetation communities, fish and wildlife, cultural and heritage resources, paleontological resources, visual resources, lands with wilderness characteristics, caves and karsts, recreation and visitor services, ACECs, WSRs, and WSAs. These closures and restrictions are discussed together under *Effects from Minerals and Energy* under each alternative.

Nature and Type of Effects

The following analysis describes the nature and type of effects that could affect minerals and energy resources in the decision area. Details on how the occurrence of each effect would vary by alternative are described under the various alternative subheadings.

Oil and Gas Leasables

Closing areas to fluid mineral development would have the greatest effect on oil and gas leasables by prohibiting oil and gas development on federal mineral estate in those areas. Total oil and gas development in the decision area may be reduced due to an inability to access resources in closed areas.

In areas where fluid minerals NSO stipulations are applied, drilling would need to be done by directional or horizontal methods in order to reach subsurface targets. However, these drilling methods are more expensive, and the target area where they could reach is limited. This means that some minerals may be inaccessible in areas where an NSO stipulation covers a large area or where no leasing is allowed on surrounding lands. Effects could be mitigated where the fluid minerals underlying these areas could be extracted (or drained) via wells drilled nearby without having to drill into the actual area subject to the NSO stipulation. This could be accomplished if the parcel subject to NSO stipulations were part of a unit or communization agreement, as long as favorable landownership patterns and geology existed. Circumstances where this method of exploration and development is possible may be limited.

Fluid minerals CSU stipulations allow some use and occupancy in areas where they are applied. While less restrictive than an NSO, a CSU stipulation allows the BLM to require special operational constraints, to shift the surface-disturbing activity more than 200 meters (656 feet), or to require additional protective measures to protect the specified resource or value, such as special construction techniques for preventing erosion in sensitive soils. While not prohibiting surface-disturbing activities, a

CSU stipulation does influence the location and level of operations in the subject area, limiting development.

Areas where TL stipulations are applied are closed to fluid mineral exploration and development, surface-disturbing activities, and intensive human activity during identified time frames, usually based on seasons or species' breeding times. While some operations would be allowed at all times (e.g., vehicle travel and maintenance), construction, drilling, completions, and other intensive operations would not be allowed during the restricted time frame, limiting development. Most activities, however, can be initiated and completed outside of the restricted dates specified in the TL stipulation.

In ROW exclusion areas off lease, the placement of ROWs for infrastructure such as roads and pipelines would be prohibited for new leases. Oil and gas activities could be indirectly effected by the resulting limits on the available means for transporting oil and gas to processing facilities and markets. Oil and gas activities would be similarly effected by ROW avoidance areas off lease. However, because a ROW avoidance area may allow for some ROW placement with restrictions or under other special circumstances, effects on oil and gas development could be mitigated.

Nonenergy Solid Leasable Minerals

Management actions that close areas to nonenergy solid mineral leasing would directly affect nonenergy solid leasable minerals by reducing the overall area available for leasing. This could, in turn, reduce the total amount of nonenergy solid leasable mineral development in the decision area.

In ROW exclusion areas off lease, the placement of ROWs for infrastructure such as roads would be prohibited for new leases. Nonenergy leasable mineral activities could be indirectly effected by the resulting limits on the available means for transporting minerals to processing facilities and markets. Nonenergy leasable mineral activities would be similarly effected by ROW avoidance areas off lease. However, because a ROW avoidance area may allow for some ROW placement with restrictions or under other special circumstances, effects on nonenergy leasable mineral development could be mitigated.

Locatable Minerals

Withdrawal of an area from locatable mineral entry prohibits staking of new claims to access and extract the mineral resources in that area. This represents an effect on the potential discovery, development, and use of those resources by decreasing the availability of mineral resources prior to the start of operation. Existing mining claims in areas withdrawn from mineral entry would require a validity exam prior to approving a plan of operations. The validity exam would likely delay the start of locatable mineral development on those claims. To constitute a valid existing right on a claim that would allow for mining activities in an area despite a segregation or withdrawal from the Mining Law, a mining claim must be valid as of the date of the segregation or withdrawal, and must continue to be valid from that date forward without substantial interruption until validity is determined. Claims associated with existing notices or plans of operations could also have to undergo a validity exam before review (for notice) or approval (for plan of operations) of any amendments to the operation, including new areas. These effects are most likely to occur in areas with past or current locatable mineral interests and development. In the decision area, most of these areas are in the mountainous portions of Fergus County.

Mineral Materials

Demand for mineral materials is generated primarily from road maintenance needs. Closure of areas to mineral material disposal would result in pits relocating nearby. If demand for mineral materials cannot be met by pits operated on federal lands, pits could move onto private lands. As a result, the total amount of mineral material development in the decision area could decrease.

In ROW exclusion areas, construction of roads and other infrastructure would not occur. As a result, demand for construction materials such as mineral materials in these areas would decrease. Mineral material activities could be indirectly effected by the decrease in demand, and the total amount of mineral material development in the decision area may decrease. Mineral material activities would be similarly effected by ROW avoidance areas. However, a ROW avoidance area may allow for some ROW placement with restrictions or under other special circumstances. This is because there could still be some mineral material development in these avoidance areas.

W.3.13 Livestock Grazing

Indicators of effects on livestock grazing are the following:

- Changes in permitted AUMs in areas available for livestock grazing
- Making areas unavailable to livestock grazing for the life of the RMP
- Changes in the type of livestock permitted on allotments
- Prohibitions or limitations of the construction or maintenance of structural and nonstructural range improvements
- Modifications to or removal of structural range improvements
- Changes to the timing, duration, or frequency of permitted use, including temporary closures
- Changes to the level of disturbance or unwanted displacement of livestock

The analysis is based on the following assumptions:

- All new and existing leases and permits would be subject to terms and conditions determined by the BLM Authorized Officer to achieve the management and resource condition objectives for BLM-administered lands and to meet Standards for Rangeland Health (BLM 1997), in accordance with BLM grazing regulations.
- The construction and maintenance of range improvements would continue in the decision area as needed. New range improvements or range improvement maintenance could be subject to limitations, as defined in the plan. Range improvements lead to better livestock distribution and management, which would maintain or improve rangeland health and could promote a healthy forage base.
- Vegetation could be treated to allow the current level of AUMs to be maintained, unless otherwise prohibited by RMP management actions.
- Livestock grazing on public lands is tied to permittee/lessee-owned or -controlled base property on private land.
- AMPs, watershed plans, and grazing use agreements may be necessary to make changes in grazing management to address resource issues or concerns.

Nature and Type of Effects

Effects on livestock grazing are generally the result of activities that affect forage levels, areas available to grazing, the class of livestock permitted, the season of use and timing, the ability to construct range improvements, and disturbance or harassment of livestock in grazing allotments. Key types of effects are detailed below.

Requiring particular livestock grazing management actions could affect operators by increasing the time and costs associated with grazing on public lands. Long-term effects on operators include a stabilized operation, based on sustainable forage production. If monitoring data indicate livestock grazing is negatively effecting other resources, appropriate adjustments would be made to AUMs, seasons of use, and forage utilization levels.

Adjusting AUMs could affect the permittee/lessee negatively or positively, depending on the situation. Adjusting grazing management could affect livestock permittees/lessees by limiting flexibility for season of use and reducing the amount of available forage in the short term. Livestock removal during times of drought and critical growth periods could limit where permittees and lessees graze their livestock. Overall, any reductions in AUMs, amount of time allowed, and forage utilization levels would negatively affect the economics of the permittee's/lessee's grazing operation. In the long term, meeting forage utilization levels could lead to attaining Standards for Rangeland Health (BLM 1997), which would create a sustained forage yield.

Construction of range improvements could improve livestock distribution and allow livestock to use more of the rangeland, consequently enhancing rangeland conditions. However, restricting range improvements could negatively affect livestock operations. For example, restrictions effecting stock pond construction could reduce AUMs where capacity is limited by water distribution.

Protective measures for other resources have the potential to restrict grazing management in the short term but may also lead to improved forage conditions in the long term. For example, protecting water quality and watershed health could require changes in livestock management, such as deferring or shortening grazing periods, adding range improvements, excluding grazing from riparian areas, establishing riparian pastures, and increasing livestock herding. These limitations could increase costs to permittees and lessees if changes were to reduce AUMs or increase management requirements.

PFC is defined as a riparian-wetland system in which adequate vegetation landform or large woody debris are present to dissipate stream energy associated with high water flows. This reduces erosion, improves water quality, and supports biodiversity (BLM 1993). Therefore, managing riparian habitat for PFC could indirectly promote healthy riparian forage production and a clean water source for livestock in the long term.

Similarly, vegetation treatments could result in potential short-term, localized, grazing restrictions; however, long-term healthy plant communities can provide for healthy forage. This is true for both vegetation treatments and fire rehabilitation projects that require rest from grazing.

In certain areas, drought restrictions could also cause short-term restrictions on grazing permittees and lessees relying on public land forage. In general, removing woodland species, such as juniper, promotes healthy forage species, such as grasses and forbs. Limiting surface-disturbing activities for such resources as sensitive soils would not directly affect livestock grazing but could affect the placement of range improvements.

Wildfire would have varying effects on livestock grazing, depending on fire size, intensity, timing, and fuel moisture content. Initially, wildfire would likely displace livestock; depending on the proximity to the fire, livestock could be stressed, injured, or killed. Wildfire and prescribed fire would remove vegetation and forage over the short term. Over the long term, wildfire could promote healthy forage production.

Wildlife species, such as elk, could compete with livestock for forage, water, and cover when they occupy the same area. Achieving wildlife population objectives would help reduce these effects. Fish and wildlife habitat management could directly affect livestock grazing in the short term through restrictions on grazing management, such as increased rotation, timing or season of use changes, or temporary rest from grazing. In the long term, management actions that enhance fish and wildlife habitat would likely improve vegetation conditions and promote healthy forage production.

Protecting special status plants and special status species habitat could directly affect livestock grazing by requiring changes to grazing management, including changing seasons of use and limiting areas available to grazing. Special status species habitats could directly influence permitted location, type, and cost of range improvements.

As described in detail in the LFO Greater Sage-Grouse Proposed RMP Amendment (BLM 2015b), managing for greater sage-grouse habitat objectives would directly affect livestock grazing, if management were to limit areas available to grazing or available AUMs, to modify grazing strategies, or to change the seasons of use. Any of these could result in increased time and cost to permittees or lessees. Management actions specifically designed to maintain or increase greater sage-grouse habitat could indirectly increase vegetation productivity and improve forage in the long term, especially in cases where current conditions are not meeting or exceeding Standards for Rangeland Health (BLM 1997).

Grizzly bear management also has the potential to effect livestock grazing by limiting changes to type of livestock permitted on allotments. Guidelines for grizzly management in the 1993 USFWS Grizzly Bear Recovery Plan, as detailed in the NCDE Grizzly Bear Conservation Strategy (**Appendix K**), would not allow changes to a smaller kind of livestock, limiting ability to switch from cattle or horse grazing to domestic sheep.

Measures to protect other sensitive sites may restrict the ability to construct range improvements or effect the location where range improvements can be located. For example, range improvements would often be restricted at sensitive cultural and paleontological resource sites. Grazing management could also change if inventory or monitoring were to reveal effects that threaten NRHP eligibility or use allocation. For example, fencing and excluding grazing from cultural sites could be necessary.

In addition, livestock and their handling facilities may be authorized under all VRM classes; however, the design and placement of new range improvements in VRM Class I and Class II areas would have to be constructed so as to repeat the basic elements of form, line, color, and texture found in the predominant natural features of the landscape (see BLM Handbook H-8410-1, BLM 1986). This could increase costs for permittees and lessees. In general, VRM classes that restrict surface-disturbing activities because of their potential effect on visual resources would indirectly help maintain forage levels. This would come about by reducing activities from public land uses that could reduce forage, harass livestock, and increase the potential for noxious or invasive weeds.

Restrictions may also apply for special designation areas. Most ACECs in the decision area would be designated to protect sensitive plant and wildlife habitat and significant cultural resources. Grazing availability depends on the designated ACEC management objectives. Managing WSAs would have direct and indirect effects on livestock grazing.

In general, restrictions on surface-disturbing and other disruptive activities would likely reduce harassment of grazing animals and maintain or improve vegetation conditions, thereby maintaining or improving the forage for livestock.

Existing range improvements are considered valid authorized uses and may be maintained in the same manner and degree that they have been in the past. The construction of new range improvements may be limited, depending on their effect on wilderness values.

In general, authorizing land developments for other resource uses could indirectly effect grazing by reducing available forage on a site-specific basis, increasing disturbance of livestock, and increasing the potential for unwanted displacement, such as cattle leaving through open gates.

Surface-disturbing activities associated with mineral development directly affect large areas of grazing in the short term during construction of well pads, roads, pipelines, and other facilities. Effects include changes in available forage, reduced forage palatability because of dust on vegetation, restriction of livestock movement, harassment, temporary displacement of livestock, and an increased potential for the introduction and proliferation of noxious weeds, thereby causing a loss of preferred livestock forage and associated AUMs.

In the long term, a smaller amount of grazing acreage is permanently lost from mining operations following rehabilitation and minimal to no AUM loss. Improving roads associated with mineral development could facilitate livestock management by maintaining or improving access to remote locations in allotments. Properly implemented BMPs and mitigation measures for authorized land uses or activities (**Appendix F**) would likely improve rangeland health and forage levels for livestock by eliminating or reducing surface-disturbing activities.

Recreation can affect livestock grazing directly through human disturbance and indirectly through rangeland degradation. Direct disturbance can include the following:

- Undesired animal dispersing or trespassing due to gates left open by recreationists
- Harassment or injury from collisions or shooting
- Damage to range improvements

In addition, OHV use results in indirect effects, such as increased dust on forage in high use areas, leading to lower forage palatability.

Another direct long-term recreation effect is disturbance caused by increased levels of human activities. The degree of effects would vary with the intensity of recreation, the timing of recreation (livestock could be more susceptible to disturbance during the spring when young are present), and location of recreation in the allotment (a higher level of disturbance could occur near areas frequented by livestock, such as water sources or salt licks). SRMAs and ERMAs managed for motorized use and access would increase these potential conflicts, and SRMAs and ERMAs managed for a quiet recreational experience would decrease them.

In general, transportation routes provide better access for permittees and lessees and allow for expedited checking and moving of livestock. Transportation routes also provide important access to livestock improvements, such as stock ponds, springs, and fences.

Short-term effects of road construction and temporary road closures include forage loss, temporary harassment, livestock displacement, and permittees and lessees being prevented from accessing their cattle in a timely fashion. Long-term direct and indirect effects on cattle from newly developed transportation routes include forage loss, reduced forage palatability because of dust on vegetation, and disturbance and harassment caused by increased levels of human activities.

Short-term effects from site-specific lands and realty actions, such as small land transfers and construction of power lines, pipelines, or other structures in ROWs, include temporary forage removal, livestock displacement, and an increased potential for noxious weed introduction and proliferation.

Long-term effects on livestock from site-specific lands and realty actions include changes and loss in forage, reduced forage palatability because of dust on vegetation, and livestock disturbance and harassment from increased levels of human activities.

Restrictions on ROWs or land transfers may indirectly effect grazing by reducing construction effects from development, such as creating dust, which decreases forage palatability, displaces livestock, and introduces noxious weeds.

Federally permitted forage and range improvement projects could be cancelled as a result of land disposals or exchanges. The forage and range improvement projects on the exchanged or disposed of land could continue to be used under other ownership. The BLM would be required to notify the permittee/lessee 2 years before any land disposal (43 CFR 4110.4-2[b]), except in an emergency. It also would be required to compensate the permittees and lessees for the range improvement projects constructed under a range improvement permit or cooperative agreement, in accordance with 43 CFR 4120.3-6(c).

W.3.14 Recreation and Visitor Services

The analysis of effects on recreation and visitor services focuses on these three types of effects and is structured under three subheadings: SRMAs, ERMAs, and the decision area, as follows:

- Management actions for each SRMA are analyzed to determine if they sustain or enhance recreation objectives, protect the desired recreation setting characteristics (RSC), and constrain uses, including incompatible recreation activities that are detrimental to meeting recreation or other critical resource objectives (e.g., cultural or threatened and endangered species).
- Management actions for individual ERMAs are analyzed to determine whether they facilitate visitors' abilities to participate in outdoor recreation and protect the associated qualities and conditions.

- The decision area discussion provides a broader analysis of effects on recreation arising from implementing management for other resource programs that may occur over the entire decision area, including those areas managed as SRMAs or ERMAs.

Indicators of effects on recreation and visitor services are the following:

- Changes to the essential recreation opportunities and RSCs in SRMAs
- Impediments to defined recreation activities and the associated qualities and conditions in ERMAs
- Management actions resulting in long-term elimination or reduction of basic recreation and visitor services and resource stewardship needs

The analysis is based on the following assumptions:

- Substantial increases in certain types of recreation (e.g., fly-in hunting or recreational OHV use) could create risks to public health and safety.
- Traditional recreation in the planning area will continue, and an anticipated increase would occur in dispersed recreation, especially hunting, fishing, mountain biking, horseback riding, and hiking.
- The potential for user interactions between all types of users will rise with increasing use.
- Demand for SRPs will increase during the life of the RMP.
- Shooting restrictions or closures may apply to developed recreation sites, such as campgrounds or trailheads, to provide for public safety.
- Under Alternatives B, C, and D, areas not managed as SRMAs or ERMAs allow recreation to occur, but recreation is not emphasized. These areas are managed to allow recreation uses that are not in conflict with the primary uses for these lands.
- In the action alternatives, individual SRMAs are managed to protect and enhance a targeted set of activities, experiences, and desired RSCs.
- In the action alternatives, individual ERMAs are managed to support and sustain the principal recreation and the associated qualities and conditions of the ERMA. Management of ERMAs is in balance with the management of other resources and resource uses.

Nature and Type of Effects

General Recreation and Visitor Services

Recreational experiences and the potential attainment of a variety of outcome-focused objectives are vulnerable to any management action that would alter the settings and opportunities in a particular area. Recreation settings are based on a variety of attributes, such as remoteness, the level of human modification in the natural environment, evidence of other users, and restrictions and controls. Management actions that greatly alter such features in a particular portion of the planning area could affect the capacity of that landscape to support appropriate recreation opportunities and corresponding outcome-focused objectives. New technologies have the potential for disturbing recreational experiences and creating safety hazards at developed sites.

Effects on recreation are generally the result of conflicts between recreational uses (e.g., motorized versus nonmotorized use), management actions related to other resources and resource uses (e.g., habitat protection and restoration and livestock grazing), and stipulations placed on resource uses.

Proposed recreation management under each alternative would also effect regional recreation conditions. For example, opportunities provided in the decision area would affect recreation use on surrounding federal, state, and local lands.

Management of soil and water quality, vegetation, fish and wildlife, and special status species includes the application of fluid minerals NSO, CSU, and TL stipulations. These stipulations, where applied to non-recreation uses, would improve recreation by limiting or prohibiting development that could conflict with recreation, experiences, and outcomes. Similar resource protections, if applied to certain recreation, such as camping, would limit those activities, experiences, and outcomes. The magnitude of effects on recreation would be directly related to the acreage affected by NSO, CSU, and seasonal restrictions and closures under each alternative.

Temporary or permanent restrictions associated with cultural resource areas, especially when they are collocated in recreation emphasis areas, could result in closing these areas to certain recreation. However, if effects could be properly mitigated by, for example, interpretive signing and stabilization to protect these sites, then visitors would be able to enjoy them over the long term.

In VRM Class I and Class II areas, recreation objectives would be protected by maintaining the scenic quality of those lands. VRM Class I and Class II designations could restrict development of recreation facilities, such as campgrounds and trails, which could alter the opportunity to enhance recreation in these areas. However, VRM Class I and Class II designations would protect the naturalness of the physical setting, thereby enhancing opportunities to participate in recreation in settings that are less developed.

VRM Classes III and IV would not likely affect the type or level of recreation use because management would generally be consistent with the construction of facilities to support recreation; however, VRM Classes III and IV would allow more change and contrast to the natural landscape, at the expense of visitors who prefer recreating in settings that are less developed.

Effects on recreation from areas open to all classes of livestock grazing could include livestock trampling vegetation and manure effects at popular recreation sites, such as campsites and trails. The intensity of the effect would vary with the visitor's expectation for recreating in areas where livestock grazing is present. In addition, developing livestock grazing facilities can affect the naturalness of the physical setting over the long term because such features contrast with the natural landscape. However, properly placed range improvements that protect and promote land health also enhance the naturalness of an area by managing forage utilization in support of the natural surroundings. Range improvements could help to reduce conflicts with recreationists by prohibiting animals from wandering onto roads, trails, or developed recreation sites.

Recreational target shooting would continue to be allowed throughout the decision area. This would continue to result in safety risks in certain areas, such as where shooting occurs near developed recreation sites (e.g., campgrounds, trailheads, and parking areas).

On lands open to fluid mineral leasing and geophysical exploration, if developed, any additional oil and gas facilities, equipment, noise, dust, vehicles, night lighting, pipelines, and human activity would alter the recreation setting in certain areas during construction and operation. This would interfere with recreationists' goals and would influence their opportunities and activities. However, applying fluid minerals NSO stipulations would retain the natural character of the landscape, while maintaining recreation opportunities in those areas over the long term. While applying fluid minerals CSU stipulations could mitigate potential conflicts with desired recreation, CSU stipulations are typically less restrictive and could result in reduced recreation opportunities by permitting development that conflicts with desired recreation.

Minerals development and disposal would result in short- and long-term effects during construction and operations by displacing recreation opportunities and degrading scenic qualities in the areas.

Areas managed as unsuitable for utility infrastructure, such as ROW exclusion areas, would protect recreation opportunities and the natural setting. The naturalness and remoteness could change over the short term and long term by the continued presence of communication sites (regardless of whether additional facilities were allowed at each site). These qualities also could be changed by the designation of utility corridors, or they could be effected by developed recreation sites and trails during construction and operation. This all would depend on the location of the corridor or development. In turn, the social and operation setting characteristics could change in these areas. Managing areas as ROW avoidance could limit or mitigate the effects of development that could be incompatible with recreation.

Developing renewable energy projects could result in the loss of recreation opportunities.

Managing ACECs would restrict surface-disturbing activities in those areas and would help maintain the existing physical setting by preserving natural landscapes.

In the WSR eligibility analysis, recreation is identified as an ORV for the Missouri River and Sun River Segments 1 and 2. In addition, the following river segments are identified as having a tentative classification of recreational: Middle Fork Dearborn River, Missouri River, North Fork Teton River, Sun River Segments 1 and 2, and Pike Creek. As such, recreational boating and fishing would be protected or enhanced as a result of protecting the recreational ORV and classification.

Special Recreation Management Areas

In SRMAs, effects could occur through changes to management focus (activities and experiences) or RSCs (physical, social, and operational). For example, changes in recreation settings could result in corresponding changes in the opportunities to achieve desired recreation experiences.

Extensive Recreation Management Areas

In ERMAs, effects could occur through changes to the principle recreation activities and the associated qualities and conditions of the ERMA. Management of recreation in ERMAs is in balance with the management of other resources and resource uses.

W.3.15 Travel, Transportation Management, and Access

Indicators of effects on travel, transportation management, and access are the following:

- Areas designated as open, limited, or closed to motorized, OHV, or mechanized travel
- Management actions that would limit the BLM's ability to maintain or enhance the travel network

The analysis is based on the following assumptions:

- Travel route inventories were not completed. Estimates were made concerning the significance of these resources based on previous surveys and existing knowledge.
- The demand to increase and maintain travel routes on BLM-administered lands would continue to increase over the life of the plan, especially near communities and popular recreation areas and in areas of existing or future mineral development.
- Demand for motorized, nonmotorized, and mechanized travel on BLM-administered lands will continue to increase throughout the life of the RMP.
- Management that limits resource uses (e.g., lands and realty ROW exclusion criteria) subsequently reduces opportunities to expand the travel network.
- The BLM would establish ROWs, as necessary, for managing county roads.
- Closure of an area to OHV travel will not apply to administrative or permitted uses (43 CFR 8340). However, closing an area to motorized travel will also prohibit administrative and permitted uses.
- Administrative use authorizations are granted on a case-by-case basis with approval from the BLM. These approvals would be under the "Limited" area designation category when the routes are designated via the separate travel management planning process.
- Travel, transportation management, and access is responsive to requirements contained in 43 CFR 8342.1 to minimize damage to soils, watershed, vegetation, air, or other resources and to prevent impairment of wilderness suitability; minimize harassment of wildlife; minimize conflicts between user groups; and, where use will not adversely affect natural aesthetic, scenic, or other values.
- The BLM cannot control access through private property. Access to BLM-administered lands through adjoining private lands without the willing consent of the landowner is trespass.
- Fixed-wing airplanes, helicopters, and OSVs are considered motorized travel modes and are subject to area and route designations.
- BLM is designing an implementation-level travel management plan with specific route designations for certain portions of the planning area as part of a separate planning process.

Nature and Type of Effects

Effects on travel, transportation management, and access are those that restrict or enhance the use of, and access to, the travel network, primarily through the management of areas as open, closed, or limited to motorized, OHV, or mechanized travel. For example, management actions that close an area to OHV travel would limit the number of acres available for OHV travel. At the same time, a limited OHV designation may effect mechanized and nonmotorized travel in the previously open areas by reducing encounters with motorized vehicles. The area designation would also focus management attention on the existing route network and on providing quality access via those routes, thereby improving management efficiency.

OHV area designations (i.e., open, closed, or limited) can effect access and the travel network by improving or degrading access for certain types of uses and by reducing or increasing the opportunities for conflict or congestion. In areas where closures apply only to OHV travel, they would restrict OHV access but potentially reduce conflicts and improve accessibility for nonmotorized modes. Designating areas as closed to OHV and mechanized travel would decrease access for those travel modes, while potentially reducing conflicts for pedestrians, equestrians, and other nonmotorized or mechanized modes of travel.

Management of other resources can affect travel, transportation management, and access by restricting the development or improvement of roads, trails, and other routes (e.g., via the establishment of ROW avoidance or exclusion areas) or changing the quantity of BLM-administered lands in the planning area. ROW exclusion and avoidance criteria decrease accessibility by reducing the potential for future access in restricted areas. Land acquisitions can add land to the public lands system, providing greater public access. Disposals transfer ownership from the BLM to another entity, which could change the nature and type of travel opportunities on those lands. Effects are discussed under lands and realty only and not under other resource areas, even though the protection of the resource may be dictating the ROW allocation. This is because effects from restrictions on development are primarily the result of land use allocations (e.g., ROW avoidance and exclusion areas) under lands and realty.

W.3.16 Lands and Realty

Indicators of effects on lands and realty are the following:

- For assessing land tenure, the number of land tenure adjustments (acquisition, retention, or disposal) and changes in ownership acres
- For assessing land use authorizations, the ability to accommodate preferred ROW locations, including transportation systems, pipelines, and transmission lines, based on the acres of the decision area lands affected by ROW restrictions (i.e., exclusion and avoidance areas)

The mandate to manage land for multiple uses requires the BLM to consider the potential effects of management actions on land tenure and land use authorizations, including ROWs. Because land tenure adjustments and land use authorizations are a resource use rather than an environmental component, effects on land tenure and land use authorizations are a direct result of actions from other resource programs and resource uses. The discussion of the effects on land tenure and land use authorizations under each alternative includes the effects on existing authorized uses, as well as potential future uses and land tenure, including restrictions, costs, and issuance or modification of proposals. Management actions of other resources were assessed to determine restrictions or limitations on land tenure and land use authorizations (including ROWs).

In addition to the assumptions in **Section W.1**, the analysis assumes the following:

- The BLM would continue to process land tenure adjustments as workforce and workload allow.
- Retention areas include all decision area lands, with the exception of lands identified for disposal.

- Existing ROWs and communication sites would be managed to protect valid existing rights.
- On renewal, assignment, or amendment of existing ROWs, additional stipulations could be included in the land use authorization.
- ROW holders may continue their authorized use as long as they are in compliance with the terms and conditions of their grant.
- The demand for all types of land use authorizations (including communication site leases and utility ROWs) would increase over the life of this RMP.
- Maintaining and upgrading utilities, communication sites, and other ROWs is preferred before the construction of new facilities in the decision area.
- Demand for small distribution facilities to extend and upgrade services, such as communication sites and utilities, would increase in the decision area as rural development occurs on private parcels in the planning area.
- Demand for both regional and interstate transmission lines would increase as population and urban areas grow.

Nature and Type of Effects

Land Tenure

Land tenure adjustments are intended to maintain or improve natural resources, recreation opportunities, or efficient management of BLM-administered lands. Land tenure actions, such as disposal, acquisition, or exchange, that create more contiguous areas of BLM-administered lands improve BLM management efficiency and could benefit certain resources and uses.

Land acquisitions allow the BLM to acquire lands to protect sensitive resources, maintain public values, and improve overall resource management. Land acquisitions improve management efficiency when the acquired lands result in a more consolidated land use pattern and are easily accessible. Lands acquired to protect or improve resource values can result in decreased management efficiency and increased management costs but do not result in a more contiguous land pattern. Examples are threatened, endangered, or BLM sensitive species habitat, riparian areas, wetlands, recreation areas, visually sensitive areas, and cultural resource sites. Retention of noncontiguous parcels also complicates access, decreases BLM management efficiency, and increases management costs.

Land disposals near cities or towns could accommodate community expansion needs by enabling lands to be used for public purposes, such as conveyance to local government under the provisions of the R&PP. The BLM-administered lands and realty program would be effected by disposals that do not consolidate landownership, do not maintain access to other BLM-administered lands, or decrease the BLM's ability to carry out its multiple-use mandate under FLPMA.

Land Use Authorizations

Resources and resource uses affect the lands and realty program by prescribing ROW exclusion and avoidance areas and fluid minerals stipulations in order to protect resources or conflicts with other uses. In ROW exclusion areas, the BLM would not permit new ROW authorizations. ROW applications could be submitted in ROW avoidance areas; however, a project proposed in these areas may be subject to additional requirements, such as resource surveys and reports, construction and reclamation engineering, long-term monitoring, special design features, special siting requirements, TLs, and relocation. Such requirements could restrict project location or could delay availability of energy supply (by delaying or restricting pipelines or transmission lines) or could delay or restrict communications service availability.

As a result of special surveys and reports, alternative routes may need to be identified and selected to protect sensitive resources. Designating ROW exclusion and avoidance areas and applying special stipulations would result in increased application processing time and costs due to the potential need to relocate facilities or due to greater design, mitigation, and siting requirements.

The following BLM resource programs contain ROW avoidance or exclusion areas to protect resources: soil resources, water resources, fish and wildlife, cultural and heritage resources, lands with wilderness characteristics, renewable energy, ACECs and ONAs, national trails, WSRs, and WSAs.

Surveys for special status plant and animal species and cultural and paleontological resources could identify resources that would, through subsequent project-level NEPA analysis, force the relocation or mitigation of a project in areas not identified as ROW avoidance or exclusion areas.

VRM classes influence the level of disturbance allowed to the natural landscape for a given area (see **Section 3.2.10**). A VRM Class I designation allows for fewer modifications to the natural landscape than a VRM Class IV designation.

Land uses are authorized so long as structures and activities associated with the land use comply with the VRM class management objectives for the area. For example, fewer land use authorizations are capable of meeting VRM Class II management objectives than VRM Class IV management objectives. Therefore, VRM class management objectives limit locations and types of ROWs and land use authorizations. Higher VRM classifications (VRM Class I is the highest, and VRM Class IV is the lowest) would likely increase application processing time and increase project costs due to the need to relocate facilities or due to greater design, mitigation measures, and siting requirements.

Prohibiting mineral material disposal, nonenergy solid mineral leasing, and fluid mineral leasing, as well as placing NSO stipulations on fluid mineral development, would indirectly effect lands and realty by reducing these development activities. This would reduce the construction of new roads, pipelines, transmission lines, and other ROWs typically needed to support mineral development.

Similar to mineral activity, renewable energy development places a demand on the lands and realty program, both in the form of new site ROWs for generation facilities and for power lines, roads, and other supporting infrastructure. Because wind is the primary renewable energy source in the LFO, effects on lands and realty would primarily be the result of new or expanded wind energy development in the planning area.

ROWs are generally not required for range-related infrastructure when constructed to support the terms and conditions of a livestock grazing permit or lease.

Recreation management actions involve managing the locations and types of recreation through the designation of SRMAs and ERMAs. Within these areas, appropriate recreation activity levels, such as camping, motorized and mechanized travel, and horseback riding, are established. Land uses are authorized so long as they comply with the management goals and objectives of the SRMAs and ERMAs and do not conflict with recreation in the SRMAs and ERMAs. Therefore, SRMAs and ERMAs could limit locations and types of land use authorizations. Some land use authorizations would not occur in order to avoid conflicting uses.

Travel management actions can involve closing areas or specific routes to motorized, OHV, or mechanized travel, thereby creating areas that are impractical for some types of land uses, such as transmission lines or communication sites.

Co-locating new infrastructure in existing ROWs reduces land use conflicts and additional land disturbance. Co-location policies also clarify the preferred locations for new utilities. However, co-location policies can limit an applicant's options for selecting ROW locations. Collocation practices can also be difficult on communication sites because of potential interference issues.

Withdrawals can affect the number of available acres for certain types of land use authorizations or land tenure. The extent and nature of the effect is specific to the terms of the withdrawal.

W.3.17 Renewable Energy

The indicator of effects on renewable energy development is the following:

- Management (e.g., designation of ROW avoidance or exclusion areas), particularly in relation to renewable energy potential that would increase or decrease the BLM's ability to accommodate future renewable energy testing and development.

The analysis includes the following assumptions:

- Renewable energy resources are solar, wind, hydropower, and biomass facilities.
- Biomass projects are generally authorized under the forestry regulations, unless a new facility is being authorized for biomass generation, which would likely be authorized under lands and realty regulations.
- Hydropower projects are licensed and developed on a case-by-case basis in accordance with the Federal Power Act. Based on recent trends (see Section 3.3.6), developing new hydropower facilities in the planning area is unlikely; therefore, effects from hydropower production facilities are not analyzed.
- At 120 meters (394 feet), wind speeds of 7 meters per second or higher are optimal for utility-scale energy generation (DOE 2015).
- Solar potential that is considered developable at a utility-scale has average annual solar energy above 6.0 kw-hours/square meter/day (NREL 2015).
- ROW holders may continue their authorized use as long as they are in compliance with the terms and conditions of their grant.
- Existing ROWs may be modified on their renewal, assignment, or amendment, so the current authorization will meet greater sage-grouse habitat objectives.
- The demand for wind energy ROWs would increase over the life of the RMP.
- Technological advancements, such as enhanced and engineered renewable energy systems, could lead to changes in levels of development potential throughout the planning area. For example, taller wind towers, such as those with hub heights of 100 meters (328 feet) or taller, are capable

of producing more energy. This is due to their higher sustained wind speeds, which in turn is due to them being higher off the ground (DOE 2015).

- Taller towers and more efficient turbine technology could enable more economically viable wind energy development in larger portions of the planning area.
- The feasibility of any renewable energy testing and development would be determined by project proponents, and all applications for land use authorizations would be subject to site-specific NEPA analysis.
- Distributed renewable energy development may occur during the life of the RMP, particularly in association with other uses such as range improvements or mineral development, but would be localized and is, therefore, not considered in this analysis.
- All future renewable energy ROW proposals on BLM-administered lands will be consistent with Regional and County Master Plans, Montana State Statutes, and the BLM Solar (BLM 2012f) and Wind (BLM 2005) programmatic EIS documents.

Alternatives were evaluated for acres of ROW avoidance, acres of ROW exclusion, and other areas (e.g., potential wind development areas) that would affect opportunities for new wind energy ROWs. Alternatives with greater acreages of ROW exclusion and avoidance are considered to have greater direct and indirect short- and long-term effects on renewable energy development potential than alternatives with fewer acres of such restrictions.

The nature and types of potential effects on renewable energy from the proposed management actions under each alternative are based on the following:

- Numerical data gathered during the planning process, particularly data related to renewable energy resource potential
- Reasonably foreseeable development assumptions for wind, solar, hydroelectric, and biomass
- BLM interdisciplinary team knowledge of the resource
- Input provided during the public scoping process

Nature and Type of Effects

Effects on renewable energy projects are generally related to where ROW authorizations are allowed to occur, the mitigation measures required for specific project siting, and special stipulations required for resource protection. Effects associated with renewable energy development are also directly related to the surface area needed for utility-scale facilities and access to or ability to develop associated infrastructure (e.g., transmission lines). Conflicts with other resources and uses would have the potential to reduce areas deemed available for development.

The location and extent of potential effects on renewable energy is contingent on the number of acres with good wind resources managed as ROW avoidance or exclusion areas. In general, alternatives with greater ROW exclusion or avoidance acreages on good or better wind resource areas would result in greater long-term direct effects on the ability for renewable energy projects to be developed. Alternatives with fewer ROW exclusion or avoidance areas on good or better wind resource areas would allow for more renewable energy development.

The following BLM resource programs contain ROW avoidance or exclusion areas to protect resources: soil resources, water resources, fish and wildlife, cultural and heritage resources, lands with wilderness characteristics, renewable energy, ACECs and ONAs, national trails, WSRs, and WSAs.

Surveys for special status plant and animal species and cultural and paleontological resources could identify resources that would, through subsequent project-level NEPA analysis, force the relocation or mitigation of a renewable energy project in areas not identified as ROW avoidance or exclusion areas.

BLM management to protect recreation opportunities and avoid visitor displacement could also restrict renewable energy development. Any ROW avoidance or exclusions would likely be associated with SRMAs and ERMAs. Within SRMAs, and to a lesser extent ERMAs, BLM could designate ROW avoidance or exclusion areas in order to maintain and enhance recreation opportunities, such as for camping, motorized and mechanized travel, and horseback riding.

Outside ROW exclusion and avoidance areas, renewable energy projects could be authorized, so long as they comply with the management goals and objectives of the RMAs and do not conflict with recreation opportunities in the RMAs. Therefore, recreation management could limit the location or scale of renewable energy development in order to avoid conflicting uses.

Within ROW avoidance areas, there are typically resource values or uses that could be negatively affected by new ROW development. As discussed in **Section 4.4.5**, ROW applications may be filed in ROW avoidance areas; however, projects proposed in such areas may be subject to restrictions that would add application processing time and increased project costs.

Alternatives with larger ROW avoidance areas would have short-term direct effects (e.g., special surveys or reports, potential siting requirements, or other mitigation) and long-term direct effects (e.g., potential operation and maintenance requirements) on the economic feasibility of the renewable energy ROW development. These economic constraints could preclude the commercial viability of developing the energy resource or redirect the development to areas with fewer restrictions.

Within ROW exclusion areas, there are resources or uses requiring protection from surface disturbance or other effects associated with ROW development. Management of areas as ROW exclusion would preclude all future renewable energy development. Exclusion areas could also affect the viability of renewable energy development on adjacent lands. This is because fewer areas adjacent to the potential project site would be available for transmission lines and other ancillary development.

Unless specific management is proposed for renewable energy ROWs, the management of areas as ROW exclusion and avoidance areas would decrease the BLM's ability to accommodate new wind and solar energy development. However, only in areas where renewable energy resource potential exists would there be a quantifiable effect on renewable energy. For instance, the management of an area with poor wind energy development potential and low solar input as ROW exclusion would not affect renewable energy. This is because the area is not viable for utility-scale renewable energy development regardless of the ROW allocation.

VRM classes also influence the level of disturbance allowed to the natural landscape of a given area (see **Section 3.2.10**). A VRM Class I designation allows for fewer modifications to the natural landscape than a VRM Class IV designation.

VRM class management objectives limit the locations and types of ROWs. Wind or biomass energy projects could be authorized so long as structures and activities associated with the activity comply with the VRM class management objectives for the area. Project denial could result if the project could not adhere to VRM objectives. Wind or biomass applications in VRM Classes I and II would likely experience longer application processing times and increased project costs due to the need to relocate facilities or to incorporate mitigation measures to offset visual effects. In some cases, projects could be denied.

W.3.18 Withdrawals

The indicator of effects on withdrawals is the following:

- Acres of lands withdrawn or identified for withdrawal

In addition to the assumptions in **Section 4.4.5**, the analysis assumes the following:

- Subject to the type of withdrawal, the BLM would continue to manage all previously withdrawn BLM-administered lands as withdrawn from entry, appropriation, or disposal under the public land laws. Withdrawals would be reviewed, as needed, and recommended for extensions, modifications, revocations, or terminations.
- All existing withdrawals initiated by other agencies, such as USFWS, Forest Service, BOR, and BIA, would be continued unless the initiating agency or the BLM requests that the withdrawal be revoked.

Resources that include withdrawals are special status species, paleontological resources, lands with wilderness characteristics, caves and karsts, minerals and energy resources, ACECs and ONAs, and national trails.

Nature and Type of Effects

Land withdrawals remove an area of federal land from settlement, sale, location, or entry under some or all of the mining and general land laws. The purposes are to limit activities under those laws to maintain other public values in the area or to reserve the area for a particular public purpose or program.

Withdrawals are also used to transfer jurisdiction over an area of federal land from one department, bureau, or agency to another. Withdrawn lands result in primarily administrative (e.g., record keeping) effects on the BLM-administered lands and realty program; however, because some acres are withdrawn from a type of use, they can affect the number of available acres for certain types of land use authorizations or land tenure. (See **Section 4.4.5** for a discussion of effects on lands and realty from withdrawals.) Revocation of withdrawals increases the BLM's land management obligations but has the potential to improve management efficiency.

W.3.19 Forest, Woodland, and Special Products

Indicators of effects on forest, woodland, and special products are the following:

- Acres with forest or woodland product lost or restored
- Forest health indicators are the amount, diversity, and age-class structure of the forest and woodland communities
- Access to forest resources

The analysis includes the following assumptions:

- Improved forest health will likely increase quality and quantity of product available for harvest (excluding salvage harvest timber operations).
- Limitations on physical access for forest product removal will continue.
- Loss of harvestable acres through legislative or administrative designations (e.g., ACEC) will likely increase demand for forest products in other areas.
- Stewardship contracting opportunities that use forest products in return for other resource service work would continue to increase.

Nature and Type of Effects

The long-term quality and quantity of forest and woodland products is tied to forest health and vegetation management. Such factors as insect and disease outbreaks, age-class structure diversity, and forest succession rate can affect forest health and products available for harvest. Forests and woodlands affected by insects and disease will provide short-term increases in the volume of available salvage harvest material. This material, however, will be of lesser quality and therefore have a lower commercial value.

In general, vegetation management objectives would complement forestry management objectives, as both programs manage for healthy forests and woodlands. Wildfire has the potential to effect forestry by reducing lands available for harvest. However, fire management may also have a long-term effect of reducing or maintaining VCC, thus restoring or maintaining natural fire regimes and limiting the likelihood of a high-intensity stand-replacing fire.

Restrictions on surface-disturbing activities and other allowable uses such as limitations to protect sensitive resources and special designation areas may reduce the area available for timber harvest. Over the life of the RMP, however, many of these restrictions would affect the forestry program by stabilizing soils and improving stand quality.

Restrictions on access (e.g., route closures, limitations on temporary road construction, and fragmented landownership patterns) may make certain areas infeasible or prohibitively expensive for harvesting timber. The extension of new access routes into forest and woodland communities would allow for better access to conduct forest health treatments and increase the availability of forest product removal.

Vegetation treatment actions generate woody biomass and other forest products; therefore, vegetation treatments support biomass production. Restrictions on vegetation treatments can affect biomass and forest product production, depending on the extent of the restrictions and if they affect the ability to meet demands.

W.3.20 Areas of Critical Environmental Concern

The indicator of effects on ACECs is the following:

- Management actions that would protect, and prevent irreparable damage to, relevant ACEC values, including important historic, cultural, or scenic values; fish and wildlife resources; or other natural systems or processes. The relevant and important values for each proposed ACEC are identified in **Appendix U**.

The analysis includes the following assumptions:

- Although management actions for most resources and resource uses have field office-wide application, ACEC management prescriptions apply only to those lands in each specific ACEC, as outlined.
- Permitted activities will not be allowed to impair the relevant and important values for which the ACECs are designated.
- ACEC designation provides protection and focused management for relevant values beyond that provided through general management of the parent resource (e.g., the cultural resource ACECs will receive greater recognition and protection than the general management action regarding cultural resources; the ESA protects threatened and endangered plants, whereas an ACEC for special status plants will offer greater protection of ecosystem processes for plants and focused management).
- Special management prescribed in ACECs is included in other resource and resource use management decisions (e.g., travel restrictions in ACECs are brought forward in travel management and will be recognized during future travel management planning).
- The potential Square Butte ACEC, which overlaps the Square Butte WSA, will be managed according to BLM Manual 6330, Management of Wilderness Study Areas (BLM 2012c), unless the ACEC management is more restrictive. Because activities in WSAs must meet the nonimpairment criterion, which generally restricts new surface disturbance, management for the Square Butte WSA will generally protect relevant and important values. If Congress releases the Square Butte WSA from further consideration, the special management for the Square Butte ACEC is designed to protect and enhance the relevant and important values.

Nature and Type of Effects

Effects identified for ACECs are specific to the area and are based on the effect that management actions would have on the relevant and important values of an ACEC. These are identified in **Appendix U**. Effects would occur if management actions are proposed that fail to prevent irreparable damage to important historic, cultural, paleontological, or scenic values; fish and wildlife resources; or other natural processes or systems.

W.3.21 Back Country Byways

Indicators of effects on back country byways are the following:

- Change to the unique cultural, natural, and scenic landscape characteristics that the back country byway is intended to highlight
- Availability of opportunities for the public to interpret, understand, and view features being highlighted by the back country byway

The analysis includes the following assumptions:

- Driving for pleasure will continue to be a popular use of BLM-administered lands.
- Where possible, this analysis uses quantitative data to describe effects on back country byways from other resources and resource use programs. Qualitative information is also used to support quantitatively based analysis or where numerical data do not exist.

- The scenic quality of back country byways and associated user experience and opportunity to interpret unique features along the route are directly influenced by the visual character of the surrounding landscape.
- Signs, public kiosks, online maps, social media, and other sources of public information improve public interpretation and exploration opportunities of back country byways.

Nature and Type of Effects

Back country byways are affected by management actions that preserve the unique cultural, natural, and scenic characteristics of the surrounding landscape or that maintain or enhance public interpretation and exploration opportunities. Actions that improve public access and understanding of back country byways also support the purpose of back country byways as an opportunity to explore unique public landscapes and historical settings.

Intensifying uses can decrease the quality of the overall back country byway experience by changing the cultural, natural, and scenic characteristics. Examples of these uses are minerals or energy development, ROW authorizations, and increases in public visitation and OHV use along or near the back country byway. On the other hand, management actions that restrict recreational use could limit interpretive opportunities.

Scenic values associated with back country byways would be affected by VRM classification. VRM Classes I and II would maintain scenic values by restricting how and where development can occur, while VRM Classes III and IV would allow more development that could more easily be seen by those traveling on a byway.

W.3.22 National Trails

Indicators of effects on national trails are the following:

- For NHTs:
  - A change in the level of disturbance that would result in the loss of integrity or destruction of physical remnants of a trail, including ruts, swales, and associated sites or artifacts, whether that loss results from erosion due to increased use, looting, or vandalism, which in turn results in a loss of archaeological information
  - A change in the cultural landscape (e.g., visual, atmospheric, or audible elements) that diminish the integrity of the trail's historic character (e.g., setting and feeling)
- For NSTs:
  - A change in scenic quality of the BLM-administered lands through which the NSTs pass
  - A change in opportunity to enjoy the nonmotorized recreation in the outdoors

The analysis includes the following assumptions:

- The BLM will follow 36 CFR 800 and Section 106 of the NHPA, or the alternative procedures described in the Montana protocol, when addressing federal undertakings; therefore, adverse effects on the NHT would be appropriately mitigated.
- National trails and related sites are protected in accordance with federal laws, BLM regulations and policy, and interagency or partnership agreements. Specifically, BLM Manual 6280 states that

the BLM may not permit proposed uses along national trails that would substantially interfere with the nature and purposes of the trail (BLM 2012g).

- The BLM looks favorably at opportunities to cooperate with private landowners to minimize or eliminate disturbance to national trails.
- The BLM is not the administering agency for the Nez Perce (Forest Service) and Lewis and Clark (NPS) NHTs. The BLM will coordinate with the administering agency to implement the comprehensive plans for the trails.

Nature and Type of Effects

National Historic Trails

NHTs can be affected by any number of actions that would result in the loss, damage, or destruction to the NHT remnants (i.e., ruts, swales), associated sites, and viewshed integrity. Activities such as ROW authorizations that cross segments of NHTs, project development in the viewshed of the trail, or OHV or other recreational activity use along, near, or crossing the NHT can contribute to a decrease in overall trail quality. These actions may cause a change to the visual or historic character and possibly destroy important scientific information related to the trail.

Direct effects on NHTs typically result from actions that disturb the soil or alter characteristics of the surrounding environment. For example, surface-disturbing activities that effect trail ruts for historic trails are considered a direct effect because the trail segments are nonrenewable. Effects on characteristics of the surrounding environment are visual elements that are out of character with, or alter, the trail's setting. Indirect effects are actions that result in data collection and proactive preservation of NHTs (e.g., partnerships that encourage research or a greater understanding of the trail's historic character).

Proposed management that would encourage increased visitor use or construct recreation facilities may indirectly result in a case of "loving the trail to death" (damage resulting from increased use) or theft or vandalism of artifacts in associated sites.

Should activities result in increased risk of damage, destruction, or loss of the NHT remnants, sites, or setting, the BLM is required to consider appropriate mitigation. Measures could include avoidance of the trail whenever possible, data collection, or off-site mitigation (e.g., document a pristine segment of trail while allowing disturbance on another segment).

National Scenic Trails

Direct effects result from actions that disturb the soil or alter the surrounding environment's characteristics that contribute to trail significance. For example, a new communication tower or transmission line would introduce visual elements in that are out of character with the trail setting. Direct effects also are proactive trail management, such as the preservation of the management corridor.

Indirect effects result from project-induced increases or decreases in activity in the planning area. The construction of a recreation facility could increase visitor use, which could result in indirect effects on previously undisturbed trail segments, particularly along NSTs. Construction in an area some distance from a trail also can result in erosion or deposition at a trail location.

Management for other resources (vegetation, wildlife, cultural and paleontological resources, and special designations) along the lands next to national trails could affect features of trails and the visitor experience. Wildlife habitat improvement projects could indirectly provide some enhancement or preservation of national trail qualities, or they may detract from the natural setting if unnatural features are created.

TLs for wildlife and special status species could affect national trails indirectly by closing these trails seasonally to protect wildlife or special status species. Closing these national trails would make them unavailable for public use or recreation. Protecting cultural and paleontological resources could indirectly affect national trails by preserving the cultural and paleontological resource values in the area, especially if those resources are at risk of degradation if protective management is not in place.

Management of soils and water quality could limit surface-disturbing activities on steep slopes, sensitive soils, or critical watersheds, making them unavailable for public use or recreation. Fluid minerals stipulations on surface-disturbing activities (e.g., NSO, CSU, and TL) could locally affect national trails indirectly by restricting or minimizing surface disturbance, thus preserving the scenic, natural, and cultural resource values in the area.

Future CTTM implementation decisions could directly affect trail use. Travel restrictions would affect the types of experiences available along these trails. Opening the trails to more types of uses would likely increase use levels but could increase conflicts. There would also likely be an increase in surface disturbance.

Developing pipelines and electricity transmission and distribution facilities next to trails could directly affect the trail during construction. Indirect effects from development in this corridor could include changes to scenic resources over the long term due to the presence of transmission lines and other facilities.

W.3.23 Wild and Scenic Rivers

Indicators of effects on WSRs are the following:

- Any potential change to the ORVs or free-flowing nature of the river segment or corridor area from its current state, as described in **Section 3.4.4**, and the draft Wild and Scenic River Eligibility Report (BLM 2015d)
- For segments determined eligible or suitable for inclusion in the NWSRS, any potential change to the tentative classification (i.e., wild, scenic, recreational), as described in **Section 3.4.4**, and the draft Wild and Scenic River Eligibility Report (BLM 2015d)

The analysis includes the following assumptions:

- Until the ROD for this RMP is signed, all suitable stream segments under consideration for WSR designation will be managed under interim protective measures required by the WSR Act and BLM Manual 6400, Wild and Scenic Rivers–Policy and Program Direction for Identification, Evaluation, Planning, and Management (BLM 2012h). At that time, any stream segment not found suitable for inclusion in the NWSRS would lose its interim protection. This procedure and the interim protective measures will ensure that the values for which these river segments were found eligible and suitable are not compromised until Congress makes a decision regarding WSR designation.

- If WSR designation is not provided (i.e., if segments are found not suitable and released from further study under the WSR Act), provisions could remain to protect these river corridors. This will be done under a combination of existing plans, policies, and actions proposed under the action alternatives of this RMP. These provisions protect streamside and riparian habitats, riparian and aquatic species, water quality, and cultural and visual resources. The major difference between designation and nondesignation is the legislative and, thus, lasting protection afforded designated streams. Decisions in this RMP, however, affect suitability only; once a segment is determined suitable, only Congress can formally designate it as part of the NWSRS.
- The BLM will not permit any actions that would affect the free-flowing nature, ORVs, or tentative classification of any of the segments, or would result in the reduction of water quality to the extent that it would no longer support the ORVs of eligible or suitable segments (i.e., under Alternatives A and B). As such, implementing the management actions will not affect eligible or suitable segments under Alternatives A and B. There would not be effects from other resources with either eligible or suitable segments. Recognizing that, the analysis of effects on eligible and suitable WSR stream segments includes an evaluation of where management actions might be inconsistent with the tentative classification given to each suitable segment, and potential effects on its ORVs or free-flowing nature.

Nature and Type of Effects

The potential effect on each stream segment depends on the ORVs identified for the segment and the tentative classification of the segment. Segments classified as recreational would allow for the greatest level of development in the study corridor, while segments classified as wild must remain relatively undeveloped. Segments classified as scenic fall in between recreational and wild segments, allowing a moderate amount of development in the study corridor. Because segments classified as recreational would allow development to the extent it is compatible with the protection of the identified ORVs, effects on segments classified as wild or scenic are the focus of the analysis of effects on the segments' classifications. In the planning area, effects on the tentative classification would come mostly from route development and mineral and energy development.

Properly functioning riparian/wetland vegetation communities provide soil stabilization, soil filtration, and diverse vegetation species. In turn, properly functioning riparian/wetland vegetation communities can provide protection for vegetation, fish, and wildlife ORVs (Dickard et al. 2015). Uses in riparian/wetland vegetation that could degrade the riparian/wetland vegetation ORV are camping, livestock grazing, and trail development. These activities can also cause soil erosion and degrade water quality, potentially effecting the fish ORV.

Management actions that prohibit surface-disturbing activities, including ROW exclusion areas and closing areas to minerals and energy development, in the WSR study corridor would provide some amount of protection for a number of ORVs, including fish, scenic, and geological values, by keeping the ORVs intact. This would also ensure that the tentative classification of the area remains intact.

Managing the segments according to VRM Class I or Class II objectives would directly protect segments with a scenic ORV by requiring that alterations to the landscape be done so as not to attract the attention of the casual observer. Alterations that could not be mitigated to reach the VRM class objective would not be permitted. Because most large-scale developments cannot meet VRM Class I or Class II objectives, managing to protect the scenic values of the planning area would generally preclude most large-scale developments. In turn, this would indirectly protect segments with geological ORV.

In general, livestock use wetland and riparian habitats for grazing and watering. Effects on these habitats can occur when they are improperly managed; this can lead to stream bank alteration, water quality degradation, erosion, loss of vegetation health, and increases in nonnative or upland vegetation (NRCS 2007). These effects, however, would be minimized by such management actions as changes in stocking rate and the timing of grazing. These actions could mitigate effects from livestock grazing on scenic, recreational, and fish ORVs.

W.3.24 Wilderness Study Areas

Indicators of effects on WSAs are the following:

- Changes in apparent naturalness resulting from management actions or vegetation manipulations that made the area appear less natural
- Effects on opportunities for solitude or primitive and unconfined recreation, as measured by the amount and type of visitor use
- Severity of disturbances or changes in unique and supplemental values or cultural resources; status of indigenous species that are listed, or are candidates for listing, as threatened or endangered

The analysis includes the following assumptions:

- The Beaver Meadows, North Fork Sun River, and Square Butte WSAs will continue to be managed according to BLM Manual 6330, Management of Wilderness Study Areas (BLM 2012c), until Congress either designates it as wilderness or releases all or portions of the WSA from further consideration.
- Managing the WSAs according to BLM policy will protect wilderness characteristics in a manner that will not “impair the suitability of WSAs for preservation as wilderness” (FLPMA Section 603[c]). This is the “nonimpairment standard.”
- If Congress releases the WSAs from wilderness consideration, the lands that were formerly WSA will be inventoried for wilderness characteristics under Section 201 of FLPMA.

Nature and Type of Effects

Managing the WSAs to the nonimpairment standard would protect wilderness characteristics through analysis for all surface-disturbing activities to ensure actions would not impair the WSA’s wilderness characteristics. Therefore, there would be no adverse effects from implementing management under any of the alternatives on wilderness characteristics.

There could be incidental effects from management of other resources that would protect wilderness characteristics in the WSAs, such as overlapping acres of the Square Butte WSA with the ACEC. This is because they often include complementary management objectives.

Grazing activities and related range improvements in WSAs may continue in the same manner and degree as on the date FLPMA was enacted (October 21, 1976), even though the activity may impair wilderness suitability (BLM 2012c). The WSA is closed to livestock grazing, so there would be no effect from such activities.

The Square Butte WSA is segregated from the mining and leasing laws by a classification under the authority of the Classification and Multiple-Use Act of 1964. There are no claims and leases considered valid existing rights. Therefore, there are no effects from this type of activity. Should the WSA be released by Congress from consideration as wilderness, the area would remain segregated until the area is withdrawn, which would offer the same protections.

Fire is managed in WSAs to allow the frequency and intensity of the natural fire regime to play its inherent role in the ecosystem. This means both allowing fire where ecosystems evolved in the presence of fire and preventing unnatural spread of fire in ecosystems that evolved without broad-scale fires. Wildfire suppression would prevent high severity of effects on vegetation and could alter wilderness characteristics in these areas over the long term. Fire suppression restrictions, such as the use of heavy equipment or retardant, could limit the effectiveness of suppression actions. However, resource damage from suppression equipment would be reduced. Minimum effect suppression tactics would minimize effects on wilderness characteristics during fire suppression.

W.3.25 Socioeconomics

Economic Effects

The following indicators were used to determine potential effects on economic conditions from proposed management actions:

- Employment by sector
- Labor income by sector
- County payments
- Non-market values from protected natural and cultural resources

The economic analysis uses the following assumptions:

- The economic analysis area includes the eight counties that contain BLM-administered lands managed by the LFO, apart from Lewis and Clark County, as discussed in Chapter 3. For the purpose of this analysis, the eight-county region is the analysis area economy of interest.
- Regional economic effects are estimated based on the assumption of full implementation of each alternative. The actual changes in the economy would depend on individuals taking advantage of the resource-related opportunities that would be supported by each alternative. If market conditions or trends in resource use were not conducive to developing some opportunities, the economic effect would be different from the estimates in this analysis.
- Resource specialists projected annual resource outputs based on the best available information and professional judgment. The purpose of the economic analysis is to compare the relative effects of the alternatives.
- Total annual recreation visits were obtained from LFO specialists using the RMIS. Recreation visits are distributed among use types according to the patterns observed on the Lewis and Clark National Forest. The recreation staff determined that use on the Lewis and Clark National Forest most closely resembled recreational uses on BLM-administered lands within the planning

area. The distribution of visitor type (i.e., local or non-local visitor on overnight or day trips) is used to estimate visitor spending. Average visitor expenditures by type were obtained from the Forest Service's National Visitor Use Monitoring program (White et al. 2013).

- The effect of applying the protest resolution for fluid minerals, as discussed under the constrained RFD scenario for Alternative A, would eliminate economic effects associated with oil and gas development.
- Non-salary–related expenditures, such as trailhead construction and range improvements, made by the LFO are assumed to be distributed among economic sectors in the same manner as the non-salary expenditures on the Lewis and Clark National Forest.
- Potential economic effects are assessed using the Apheleia Tool (Forest Service 2019) developed by the Forest Service Inventory and Monitoring Institute in Fort Collins, Colorado. This tool uses a Microsoft Excel workbook as an interface between user inputs and data generated using the IMPLAN input-output modeling system (IMPLAN 2016).
- Jobs in IMPLAN are the annual averages of monthly jobs in each industry. A job can be either full-time or part-time; the job estimates are not full-time equivalents (FTEs). Thus, one job lasting 12 months is equivalent to two jobs lasting 6 months each or three jobs lasting 4 months each.
- The Aphelia analysis assesses the economic effects of the resource outputs projected under each alternative. Resource outputs in this context are the amount of a resource (for example, forest products, AUMs, recreation visits) that would be available for use under each alternative. Resource outputs were received from LFO specialists and discussed throughout this document.
- Employment and labor income estimates developed for this analysis include direct, indirect, and induced economic effects. Direct employment would, for example, be generated in the grazing sector as livestock operators and ranchers using BLM forage. Additional employment would be generated as the affected livestock operators purchase services and materials as inputs ("indirect" effects) and ranchers and suppliers spend their earnings within the analysis area economy ("induced" effects). Direct, indirect, and induced effects are combined in the discussion of effects below.
- Non-market values, including natural amenities, non-use values, and ecosystem services, are assessed in qualitative and non-economic quantitative terms, as appropriate.

Social Effects, including Environmental Justice

Table W-12, Indicators for SoP Values, lists the six SoP values and the indicators used to assess the alternatives. Indicators were developed using the definitions of each SoP value provided in the AMS (BLM 2018).

The social analysis makes the following assumptions:

- The social analysis area includes the eight counties that contain BLM-administered public lands managed by the LFO.
- The social analysis uses the framework described above to assess the social consequences of management actions. The values were identified based on the results of public scoping and information from the RMP interdisciplinary team. The SoP values identified through this exercise

Table W-12
Indicators for SoP Values

Social Value	Indicator(s)
Open Space	ACEC acres Acres managed to protect wilderness characteristics Acres available for grazing VRM Class I and Class II acres
Access	Areas designated as open, limited, or closed to OHV travel and/or mechanized travel (from **Section 4.4.4**) Acres managed to protect wilderness characteristics
Healthy Sustainable Resources	ACEC acres Acres managed to protect wilderness characteristics Grazing- and recreation-related employment
Economic Development/Sustainability	Employment Income
Customs and Cultural Interests	AUMs Acres available for grazing Areas designated as open, limited, or closed to OHV travel and/or mechanized travel (from **Section 4.4.4**)
Tribal Values and Interests	No quantitative indicators used

form the social baseline; in other words, these values are not specific to any alternative. The social analysis finds that no single alternative is most supportive of all SoP values. This indicates that use of the SoP framework does not bias the social analysis in favor of any alternative but presents potential outcomes to SoP values for the alternatives.

- Indicators have been identified for each of the six identified SoP values. These indicators are used to assess the alternatives. The analysis is primarily qualitative. However, quantitative measures, such as acres available for recreation and AUMs are used, as appropriate.
- The framework used for the social analysis employs generalities. The diversity within the six SoP values are more nuanced than described and individuals in these communities may hold multiple SoP values; individuals and communities do not fall into mutually exclusive groups. Nevertheless, the SoP values provide useful categories for assessing social effects based on the particular BLM-administered public land–related interests.
- The indicators for each value attempt to capture the multiple opinions associated with the value. For some, the open space value may be primarily about grazing. For others, that value is associated with diverse and abundant recreation opportunities. The social discussion will attempt to address the multiple stakeholder groups who hold the identified values.
- Acres are used as the primary indicator for how management decisions affect social values. Where other quantitative measures are appropriate (e.g., AUMs), these have been identified.
- Not all acres are comparable. For instance, an acre available for grazing likely holds a different value for a rancher than an acre of protected resources does for a wilderness advocate. Nevertheless, for the purpose of this analysis, it is assumed that each acre equally supports the indicator of interest.
- The environmental justice analysis considers both counties and interest groups with a high proportion of low-income and/or minority residents who may be adversely affected by LFO management decisions.

W.3.26 Tribal Interests

The BLM has initiated government-to-government tribal consultations with affected federally recognized Indian tribes to identify tribal interest and traditional cultural resources in the planning area; the list of federally recognized Indian tribes with interest in the planning area is provided in **Section 3.5.2**. All laws, regulations, and policies pertinent to determining effects on tribal interests and resources (such as EO 13007, Native American Sacred Sites) were considered and included in effects criteria. This known information was overlain with the actions found under each alternative in **Chapter 2**, and conclusions were drawn based on an understanding of how these types of actions may affect tribal interests.

Indicators used in a NEPA analysis should provide information on determining the extent or degree to which a tribal interest, resource, or setting is damaged, its physical integrity is lost, or its physical integrity is otherwise adversely affected by a proposed action. Unlike cultural resources, which have legal criteria for determining the effects, the effects on areas or resources of tribal interest and the severity of effects depends on the perspective and context of the tribe or affected group. In other words, significant effects would be determined by Indian tribes defining what is culturally or spiritually important to them. When assessing whether the action would have a significant effect, the following level-of-effect indicators are carefully considered and consulted on with tribal representatives:

- Magnitude: The amount of physical alteration or destruction that can be expected. The resultant loss of tribal value is not measurable in quantitative terms but is described in a qualitative summary.
- Severity: The irreversibility of an effect. Effects that result in an irreversible and irretrievable loss of value are of the highest severity.
- Duration: The length of time an effect persists. Effects may have short-term or temporary effects, or conversely, more persistent, long-term effects on tribal values.
- Range: The spatial distribution, whether widespread or site-specific, of an effect.
- Frequency: The number of times an effect can be expected. For example, an effect of variable magnitude and severity may occur only once. An effect resulting from annual activities, such as road maintenance, may be of recurring or ongoing in nature.

The analysis includes the following assumptions:

- Native Americans or other traditional communities have concerns about federal effects on cultural resources, religious practices, or natural resource gathering that may occur because of federal actions. In cases where these concerns may be present, consultation would occur with the potentially affected Indian tribes.
- There may be areas of importance to contemporary Native Americans that are not readily identifiable outside of those communities.
- Consultation would continue with Indian tribes to identify any traditional cultural properties or resource uses and to address effects. Through this process, effects would be minimized or eliminated, although residual effects would be possible.

Nature and Type of Effects

There would be no immediate effects from the goals, objectives, and allocations noted in the alternatives, though there may be direct effects associated with some future management actions.

Indirect effects are those that would result from implementing the planning decisions at a later time and those that are cumulative. Most effects are difficult to quantify because the locations of sacred sites in the planning area are unknown, and planning-level alternatives typically do not identify specific areas for surface-disturbing activities.

An adverse effect is any action that disturbs the integrity of an Indian Trust Asset or treaty-based right or responsibility of the BLM in the planning area. Those actions can be caused by development (e.g., road construction or logging) or conservation (e.g., habitat improvement or landscape reclamation) alternatives. The BLM would continue to maintain government-to-government consultation with federally recognized Native American tribes and would consult with tribes during future resource management actions to assess case-by-case or project-by-project effects.

Types of effects that could occur from the planning actions are the following:

- Direct disturbance of locations or landscapes associated with trust or treaty assets, traditional beliefs, sacred sites, resource gathering areas, hunting and fishing areas, water sources, ancestral sites, human remains, and trails (similar to those described in **Section 4.3.8**)
- Alterations of visual and aural[4] aspects of the cultural landscape's setting that would create changes to the landscape that make it no longer useable by tribal members
- Increased access and human presence, which could lead to increased vandalism and unauthorized collection of ancestral sites or trespass on treaty areas
- Decreased tribal member access or interference with the exercise of cultural uses and practices, such as resource gathering or hunting
- The potential for erosion, pollution, habitat loss, and less tangible changes to natural features and resources that tribal members may consider sacred

Depending on the extent and type of activity, the amount of physical disturbance could range from a slight visual change or other intrusion on a landscape to wholesale destruction of an entire location or site. Whether effects would affect a small portion of an area or affect a larger stretch of landscape would need to be evaluated by tribal representatives before making a determination on an effect's severity. However, it is reasonable to assume that effects resulting in an irreversible and irretrievable loss of a tribal value are of the highest severity. On a project-by-project basis, the extent of the disturbance would be largely focused on a site-specific location. However, over time and as more actions occur throughout the planning area, the extent would be throughout planning area.

Under all alternatives the BLM would continue to manage BLM-administered lands in a manner that accommodates Native American religious traditions, practices, and beliefs as guided by directives contained in BLM Manual 8120 (BLM 2004), American Indian Religious Freedom Act (42 USC 1996), NAGPRA (25 USC 3001), EO 13007 (Indian Sacred Sites), EO 13084 (Tribal Consultation), and Secretarial Order 3317, DOI Policy on Consultation with Indian Tribes (December 1, 2011). All alternatives allow for the appropriate tribal governments to consult on a case-by-case basis on undertakings on BLM-administered lands that could affect Native American concerns. The BLM would continue to identify, protect, and preserve tribal assets, treaty rights, sacred and religious sites, or special use areas through site- and project-specific modification or mitigation on a case-by-case or project-by-project consultation basis that could affect Native American concerns.

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[4] Of or relating to the ear or the sense of hearing

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